DOCUMENT RESUME

ED 183 321 RC 011 857

AUTHOR	Fielder, Erica; Shaffer, Carolyn
TITLE	Ecology for City Kids.
INSTITUTION	San Francisco Ecology Center, Calif.
SPONS AGENCY	San Francisco Foundation, Calif.
PUB DATE	Apr 76
NOTE	61p.
EDRS PRICE	MF01/PC03 Plus Postage.
DESCRIPTORS	Ecology; *Environmental Education; Experiential Learning; *Field Trips; *Instructional Materials; Junior High Schools; Learning Activities; *Outdoor Education; Urban Education; *Urban Environment; *Worksheets
IDENTIFIERS	San Francisco

ABSTRACT

This scrapbook provides junior high school teachers with tested activities and ideas that bring ecology to urban students without going far away (just around the block), without taking long hours to prepare, and without spending precious budget money. Awareness of the richly varied, pleasant and not-so-pleasant sights, sounds, and textures of the city is fostered through games and make-believe (Who eats who in the food chain? What does it feel like to be a tree? What if all the cars went away?); adventures exploring new territory (making crayon rubbings of everything from leaves to man-hole covers); discovering wild things (banana slug trails on concrete street embankments or spider webs on brick buildings); and becoming private "eyes" and public investigators (by participating in treasure hunts and conducting "man-on-the-street" interviews). Worksheets, all of which can be duplicated, involve students in an interdisciplinary approach to learning and give structure and focus to the learning experience. The activities can be conducted in any order and, for the most part, in any city neighborhood. (NEC)

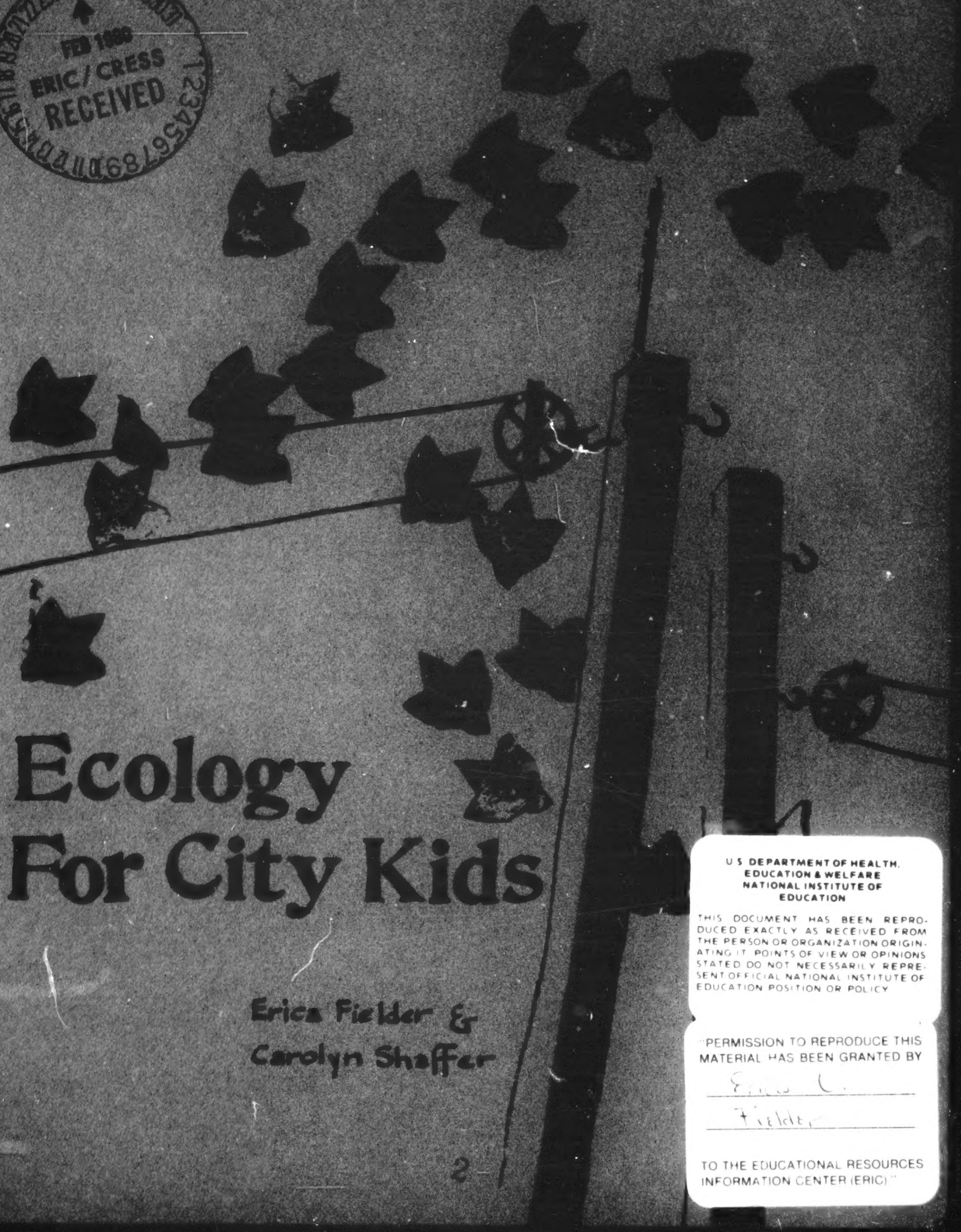
****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

FEB 1980
ERIC/CRESS
RECEIVED

ED183321

Ecology For City Kids

Erica Fielder &
Carolyn Shaffer

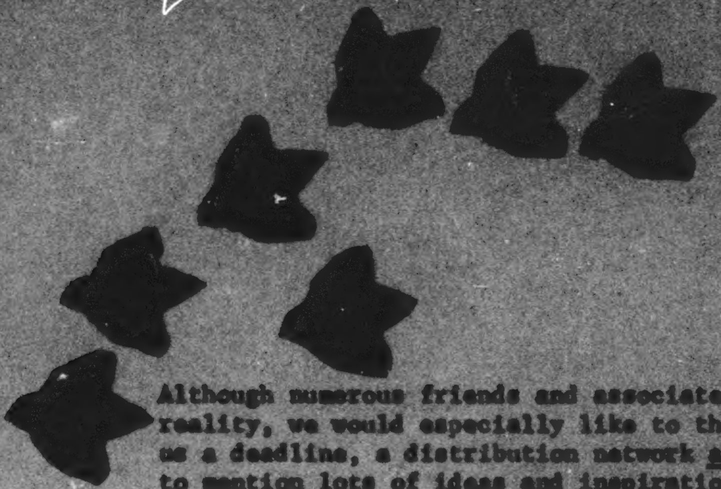


PC011857

U S DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

"PERMISSION TO REPRODUCE THIS
MATERIAL HAS BEEN GRANTED BY
Erica L.
Fielder
TO THE EDUCATIONAL RESOURCES
INFORMATION CENTER (ERIC)."



Although numerous friends and associates helped make this book a reality, we would especially like to thank RON JONES for giving us a deadline, a distribution network and the rubber stamps, not to mention lots of ideas and inspiration. Many of the treasure hunt and survey ideas (pp.14 & 19) come from his Deschool Primer #3: Your City Has Been Kidnapped; the environment test (p.51) is from Zephyros' Deschool Primer #12. (See p.56 for more information on Zephyros). We would also like to thank our photographer, LINDA HUTCHINSON, who followed us from highrise to pygmy forest taking all the photos, except for the one on p.34 by WHALEN CHINN; and JUNE DAVIDEK, the darkroom genius who reduced/enlarged the photos to fit these pages; ELEANOR McCALLIE, the mad slasher/editor who blue-pencilled our favorite flowery phrases; MOIRA TIMMS and LINDA DOERFLINGER who performed acrobatics at the typewriter to squeeze the type into the strange shapes left by the graphics; CHARLIE STARBUCK who edited and provided cookies and occasions for celebration; JOSH GITOMER and ANNIE KELLEY for the inspiration of Earthlight publication, as well as their technical advice; CAREN WARHAFTIG who helped us teach Nature under the freeways and put the finishing touches on this volume; VIRGINIA RYDER of the San Francisco School District's Environmental Science Center who provided the idea for the mini-day-pack (p.10) and the opportunity for us to work with many schools; the AUDUBON NATURE TRAINING SOCIETY which gave us training in the "discovery method" of outdoor education and ideas for the worksheet on "City Senses"; JANE BURKE of WALLER PRESS who, with patience and humor, answered our questions and saw the book through the printing process; and THE SAN FRANCISCO FOUNDATION which funded this project, with special thanks to MARTIN PALEY who took a personal interest in seeing it through.

Drawings and layout: ERICA FIELDER
Calligraphy and worksheet graphics: CAROLYN SHAFFER

DATE OF PUBLICATION
1st printing: April, 1976
2nd printing: April, 1979

$3.00

Acknowledgements

This Book Is About

how teachers can bring ecology home to city kids

- without going far (just around the block)
- without long hours of preparation
- without spending precious budget money . . . and
- while both learning and having lots of fun in the process.

Actually, it's a scrapbook of some of the things which we have done with teachers and schoolkids in our Ecology for City Kids program.

Awareness.

AWARENESS of the richly varied, pleasant and not-so-pleasant sights, sounds and textures of the city

GAMES & MAKE-BELIEVE who-eats-whom in the food chain? what does it feel like to be a tree? what if all the cars went away?

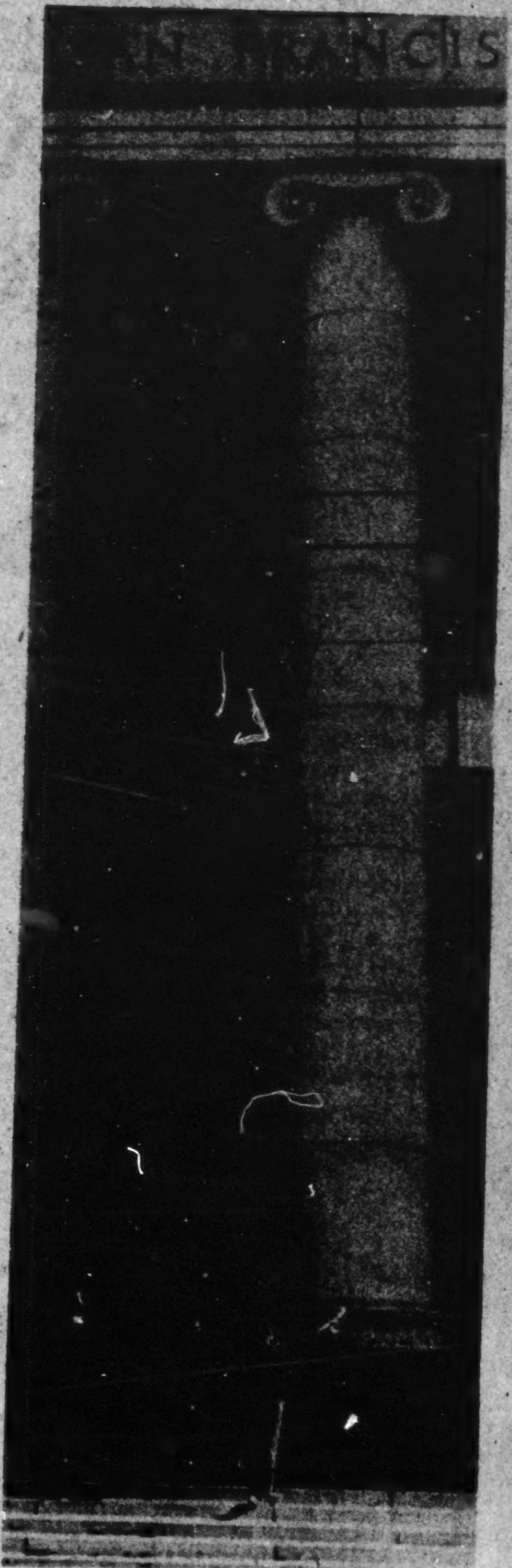
ADVENTURES exploring new territory, discovering wild things, becoming private "eyes" and public investigators

WORKSHEETS, WORKSHEETS and more **WORKSHEETS** all of which can be duplicated and dittoed to your heart's content

Gifts From The City

If we are enjoying life to the fullest we are recognizing the gifts that people around us, our adventures, and the Earth offer to us. A gift is something our senses can enjoy, something we like to taste, smell, look at, touch or listen to. It can be the sun glinting off the windows in the skyscrapers at sunset, it can be the chain of red and gold lights of the Bay Bridge at night, a hummingbird's nest in Golden Gate Park, a fossilized sand dollar on Ocean Beach or a mural somebody painted on the Noe Valley Community Store. Sometimes we spend so much time struggling against the chaos, pollution, noise, unfriendly people around us, that we become insensitive to simple gifts of beauty that exist all around us. When this happens we all need a change.

These pages of ideas and activities will lead you to fresh experiences because they take you outdoors where other people live, where plants and animals interact, where life is constantly renewing itself. These are adventures and explorations that need very little preparation. In the past few years we have worked with many of you designing activities which fit your students' needs and which can be done on the spur-of-the-moment.



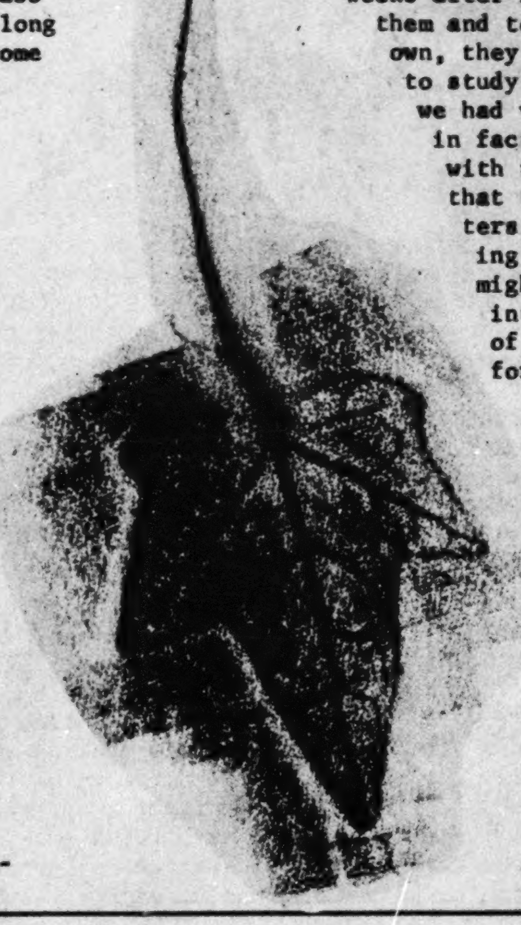
So what gifts do the people in your school neighborhoods have to offer you? What plants and animals may surprise you in vacant lots, underneath freeway on-ramps? Where are the quiet places, the wild places where one can explore or have an adventure? How do you fit in to the great cycle of city life as you receive and offer gifts yourselves? Your experiences show you that children thirst for this knowledge. They have all the tools -- eyes, ears, fingers, tongues, noses -- for discovery. They have all the emotions of joy and love and appreciation for what is opened for them. All you need to do is take them outdoors.

carolyn —

Some Gifts We Have Received

The true rewards of our work have come in watching children unfold in unexpected and beautiful ways - in watching quiet children open up and talk excitedly about the cluster of gleaming insect eggs they have just discovered; or in seeing, before one's very eyes, the class troublemaker turn into a proud authority on salamanders, leading the rest of the class into constructive rather than destructive activities for a change. We have found that, when allowed to explore a new and more open environment, students can break out of their old classroom patterns and discover, along with the secrets of nature, some secret and delightful aspects of themselves.

Most noticeable and touching were the changes that occurred on a three day trip we took with eighth-graders to Jug Handle Farm, a nature-study center on the Mendocino coast. There, students of various ethnic and economic backgrounds who had not even known one another's names on the way up, were - after a couple of hours of laughing and joking around the fire - opening up to one another in very trusting, personal ways. In our walks in the woods all the distracting banter and defensiveness of the big city slipped away and this small group of students began once again to learn with openness and joy. One East Indian student, who had had no previous exposure to ecology, became enthralled with studying nature. All evening she poured over a set of nature slides and voraciously read a book on John Muir's life, in addition to teaching us all how to make Indian tea!

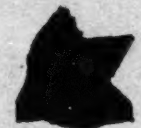


Often, when we visit a school just once or twice, we have little idea of how much effect our work has had beyond those short visits. That is why I was especially pleased to have the opportunity to return to a sixth-grade class several weeks after my field trips with them and to learn that, on their own, they had been continuing to study the lovely wooded lot we had visited. This class, in fact, was so impressed with the hilltop study site that they had written letters to the owner suggesting ways in which he might turn his property into a permanent place of beauty and learning for the whole community.

The enthusiasm and goodwill of this particular class was heartening, although at times a bit misdirected. I will never forget leading a group of the girls back to school when two of them caught up with me, breathless and smiling, to present a gift - a bouquet of wildflowers. I turned around, only to discover, to my delight and dismay, that every one of the girls behind me had picked a similar lovely bouquet of wildflowers. They looked so pleased with themselves that I hardly had the heart to tell them - as I should have before the walk - that they simply must not collect living things on field trips (other than a single specimen for lab investigations). Otherwise, they would soon be destroying the very environment they had so enjoyed studying.

I remember the Japanese Garden,
I remember the beautiful Straw berry. patch,
I remember the fruit trees.
I remember the leaves,
I remember bugs under the rock.

Linda Park



—erica

I, too, remember the living things outdoors. One day the 5th-graders, their teacher, Carolyn and I walked from Bessie Carmichael School through the industry traffic and choking fumes of Folsom Street. We hurried across busy intersections, shouted to one another over unmuffled engines, and stuck our heads into a humid and soapy smelling laundry. Our senses were directed toward our surroundings and we were gathering information about the things we liked and did not like. Skidding over greasy, rainsoaked sidewalks and weaving between cars down a narrow alley, we arrived beside a high cyclone fence and gate woven through with laths and secured with a chain and lock. The magic of living things lay behind this dark barrier. We were about to enter the Clementina Community Gardens.

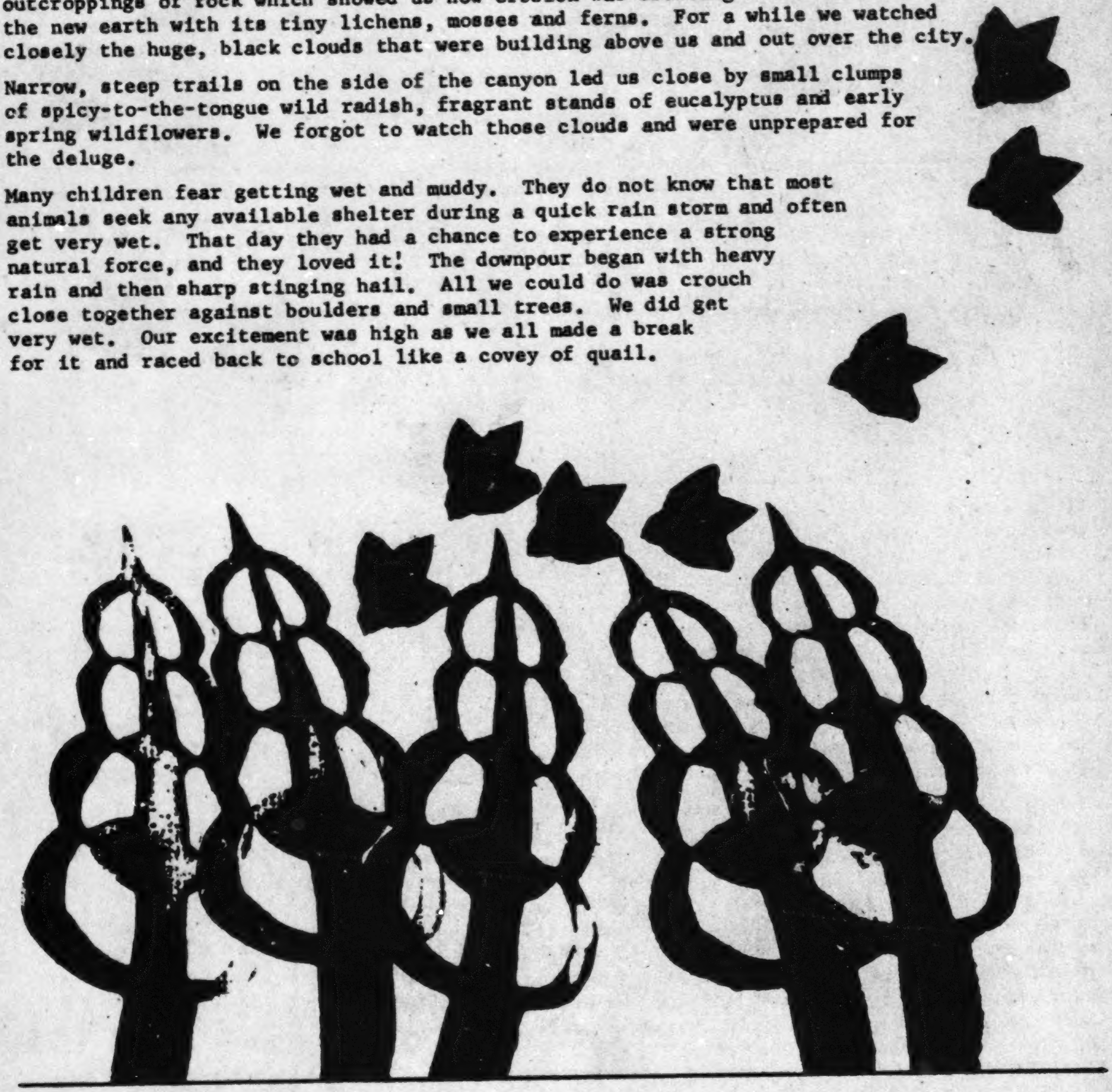
The gates were unlocked for us and pushed aside. Shocked by the brilliant green light reflecting off of the lush foliage, we stood motionless. Here, earth had been dumped in mounds and left to be moulded and terraced in the Asian manner by the elderly Chinese residents of Clementina Towers. Just before us was a tiny pond lined with carefully chosen pieces of rubble. It even had its own miniature 'windmill' made of scrap tin and wood. Love had helped this garden to grow and the children felt it right away. With high excitement they traveled the narrow paths asking questions of the kneeling gardeners and receiving tastes of strange and wonderful plants. Something in each of us was responding mightily to life.

I remember, too, a bright, sunny day when Carolyn and I walked with a group of second graders around the neighborhood of Paul Revere Annex. We came upon one of those full eucalyptus trees festooned with tufts of brilliant red flowers. Deep in its stamen fur each flower is cup-shaped and holds drops of nectar for bees and hummingbirds. That day we pretended we were hummingbirds. As the children pressed close to the trunk of the tree I reached up and shook the branches of red flowers. Droplets of sweet liquid rained down on their tongues and hands and soon even the pavement was splotched with wetness. We all closed our eyes to better taste the fragrant eucalyptus nectar as we licked our fingers.

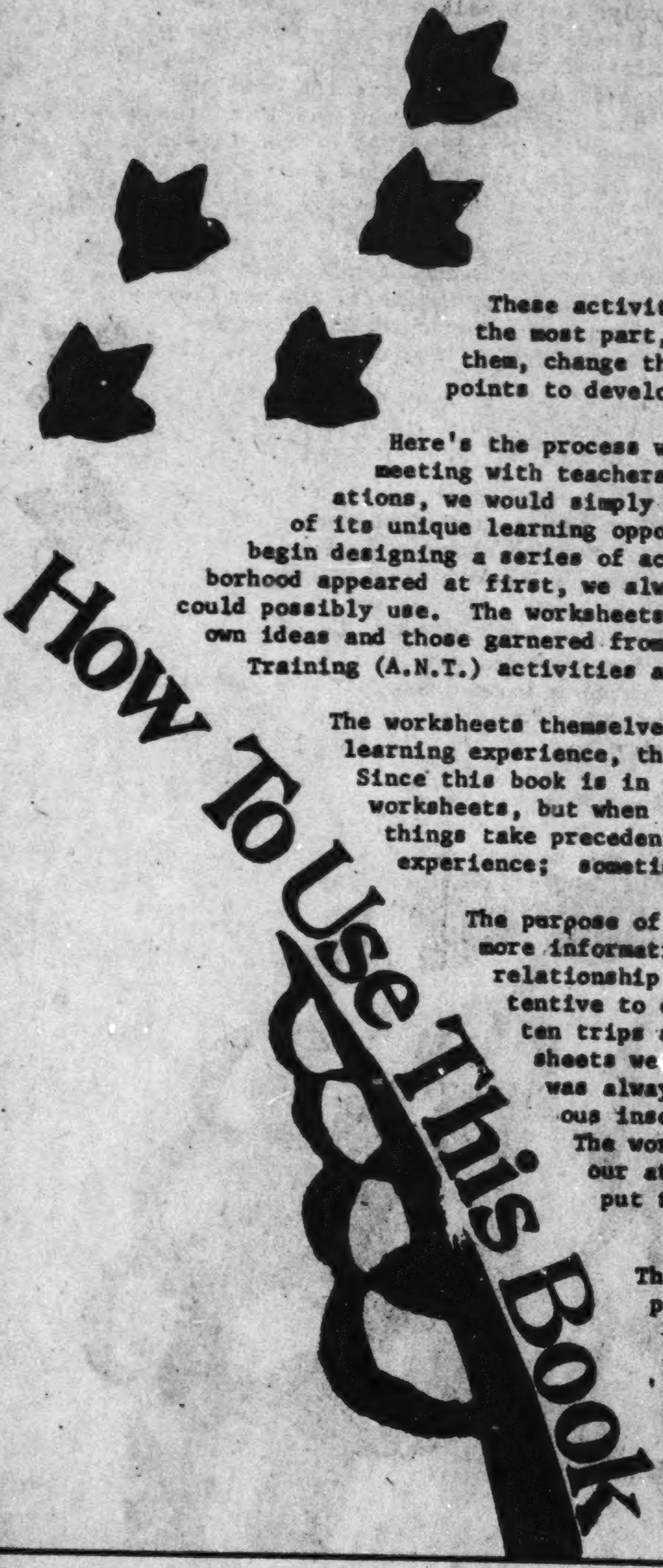
And then there was the day in Glenn Canyon Park when we hunted for pockets in the outcroppings of rock which showed us how erosion was creating soil. We smelled the new earth with its tiny lichens, mosses and ferns. For a while we watched closely the huge, black clouds that were building above us and out over the city.

Narrow, steep trails on the side of the canyon led us close by small clumps of spicy-to-the-tongue wild radish, fragrant stands of eucalyptus and early spring wildflowers. We forgot to watch those clouds and were unprepared for the deluge.

Many children fear getting wet and muddy. They do not know that most animals seek any available shelter during a quick rain storm and often get very wet. That day they had a chance to experience a strong natural force, and they loved it! The downpour began with heavy rain and then sharp stinging hail. All we could do was crouch close together against boulders and small trees. We did get very wet. Our excitement was high as we all made a break for it and raced back to school like a covey of quail.



How To Use This Book



These activities can be done in any order and, for the most part, in any city neighborhood. Rearrange them, change them, add to them. Use them as starting points to develop your own custom-made city explorations.

Here's the process we went through to develop them: After meeting with teachers and finding out their needs and expectations, we would simply roam around the neighborhood, get a sense of its unique learning opportunities, choose a focus or theme, and begin designing a series of activities. No matter how bleak the neighborhood appeared at first, we always ended up with more ideas than we could possibly use. The worksheets we developed were often a blend of our own ideas and those garnered from Zephyros materials, Audubon Nature Training (A.N.T.) activities and other sources of inspiration for us.

The worksheets themselves represent only a small part of the total learning experience, that which gives it structure and focus. Since this book is in printed form, it appears to focus on the worksheets, but when living out the experiences, the living things take precedent. The worksheets should not dominate the experience; sometimes they may not even be used.

The purpose of the trips outdoors is not only to gain more information but also to develop a more perceptive relationship with the environment, to become more attentive to one's familiar, mundane world. On taking ten trips around the same block using the same work sheets we never exhausted the possibilities. There was always a new caterpillar to study or mysterious insect eggs to bring back for identification. The worksheets helped us get started by focusing our attention, but we were always willing to put them aside to explore the unexpected.

Throughout this book we make reference to places we have visited and materials we have used. Information about these resources is given on page 56.

If you have time, let us know how this book has helped and what other ideas you have found effective.

We think field trips are a vitally important part of a student's education. Getting students outside the classroom into the community enables them to see, feel, hear, explore and discover things first hand which otherwise they would only be able to learn about indirectly. First hand learning is more exciting and more effective, and field trips provide perfect opportunities for students to put to practical use the skills they have learned in the classroom.

BEFORE going outside take some time to talk about the trip - who and what you might see, who might see you, how you might feel about your surroundings, how other living things in these surroundings might feel about you, how to best treat one another and the environment while on the trip, what might be especially exciting, what might be scary, what you can do and learn on the way there and back, how others might learn from you, and so on.

You might make a list with the students of what you all feel are the more important experiences to be included in the trip. And then design the trip to include these. You might also use pictures, films, games, speakers from the community, and other resources to generate enthusiasm before a trip.

LUNCH on a trip is always a treat so plan a special time for it if possible. Choose a location that has room enough for huge bursts of energy. You all may want to share some special goodie (home baked bread, a taste of a wild edible plant) and play some games together. If you have a quiet moment, talk about where all the food and wrappers in your lunches came from and where they will go when eaten or thrown away.

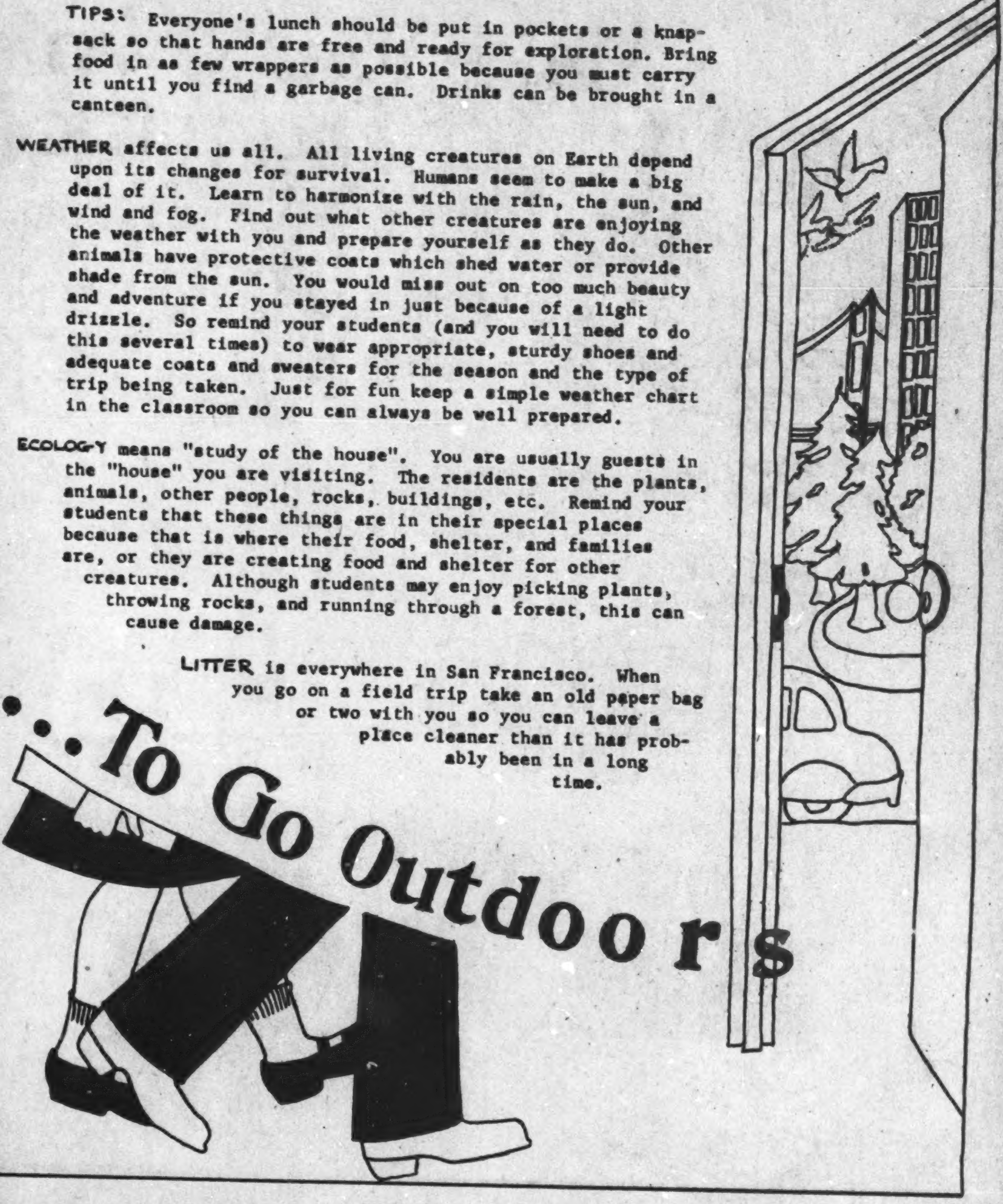
And Now It's Time..

TIPS: Everyone's lunch should be put in pockets or a knapsack so that hands are free and ready for exploration. Bring food in as few wrappers as possible because you must carry it until you find a garbage can. Drinks can be brought in a canteen.

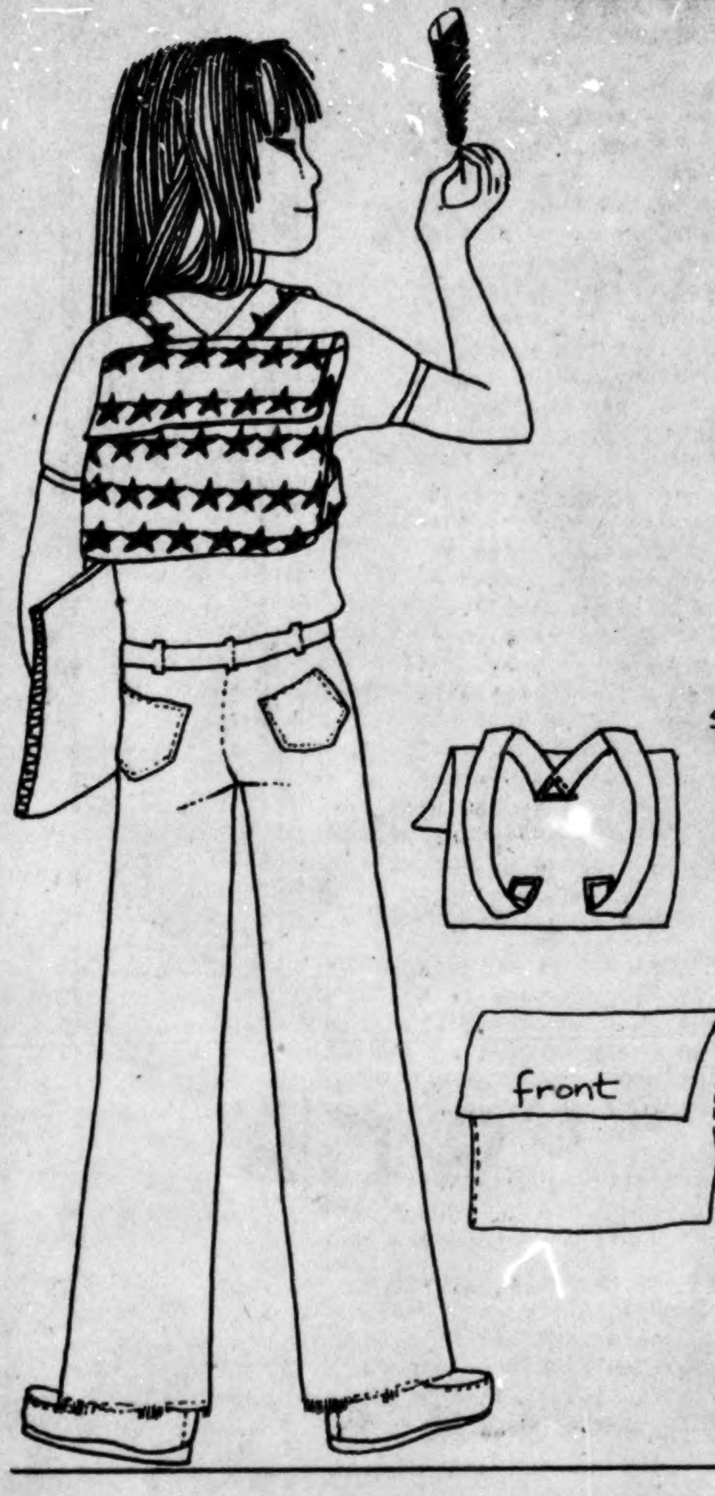
WEATHER affects us all. All living creatures on Earth depend upon its changes for survival. Humans seem to make a big deal of it. Learn to harmonize with the rain, the sun, and wind and fog. Find out what other creatures are enjoying the weather with you and prepare yourself as they do. Other animals have protective coats which shed water or provide shade from the sun. You would miss out on too much beauty and adventure if you stayed in just because of a light drizzle. So remind your students (and you will need to do this several times) to wear appropriate, sturdy shoes and adequate coats and sweaters for the season and the type of trip being taken. Just for fun keep a simple weather chart in the classroom so you can always be well prepared.

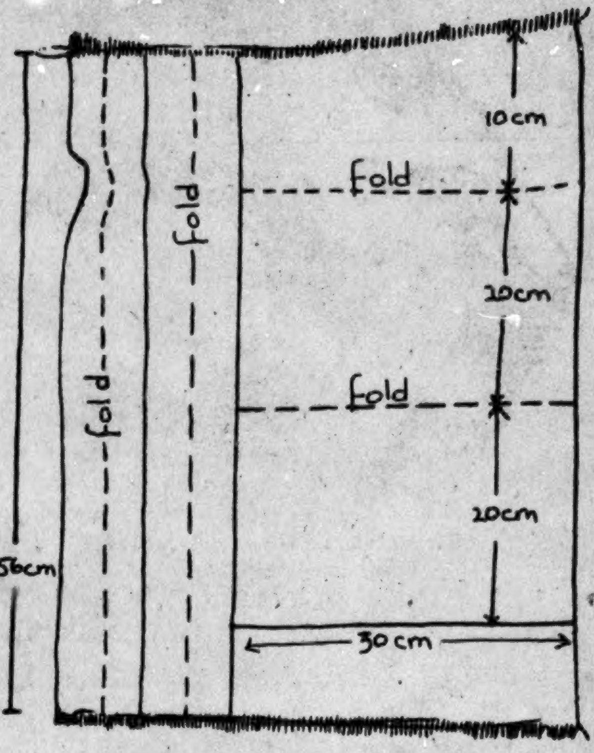
ECOLOGY means "study of the house". You are usually guests in the "house" you are visiting. The residents are the plants, animals, other people, rocks, buildings, etc. Remind your students that these things are in their special places because that is where their food, shelter, and families are, or they are creating food and shelter for other creatures. Although students may enjoy picking plants, throwing rocks, and running through a forest, this can cause damage.

LITTER is everywhere in San Francisco. When you go on a field trip take an old paper bag or two with you so you can leave a place cleaner than it has probably been in a long time.



Make Your Own Daypack

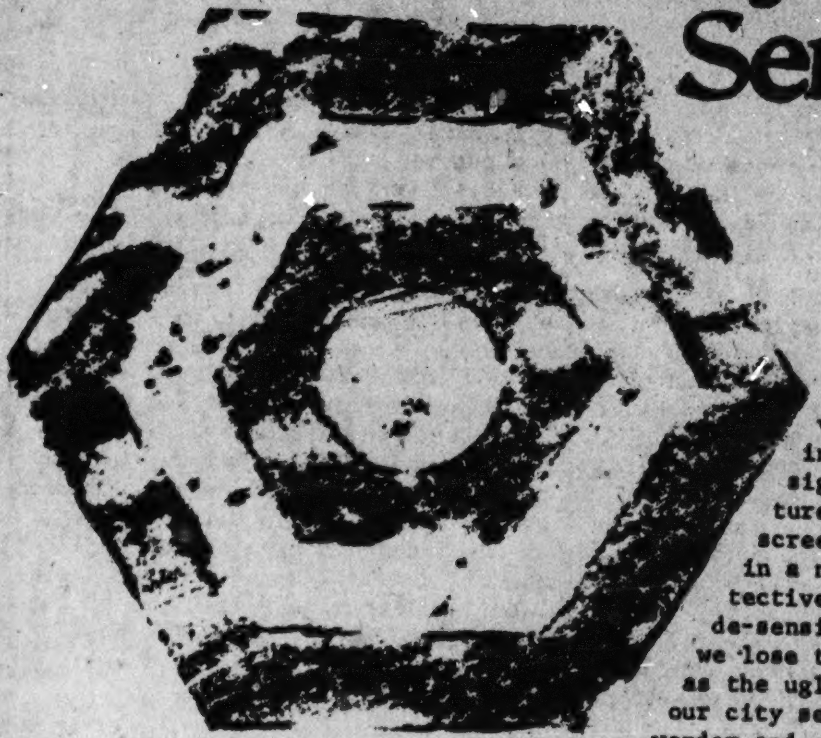



10cm
fold
20cm
fold
20cm
56cm
fold
fold
30 cm

PACK-FILLERS

lunch
extra sweater
bandanna handkerchief
notebook & pencil
plastic bag
bottle for insects
1-meter string
(for measuring)
hand lens
nature guide

Sharpening City Senses



Most of the time we walk around virtually 'blind' to our surroundings. Not only do we screen out sights but sounds, smells and textures also. To some extent this screening is necessary for survival in a noisy, crowded city. Such protective 'blindness', however, can so de-sensitize us to our environment that we lose touch with the beautiful as well as the ugly and unpleasant. By sharpening our city senses we can regain our sense of wonder and natural curiosity in the midst of the deadening aspects of our urban environment. And we can help keep this sense of wonder and curiosity alive in the children with whom we work.

Exercise: Before going outside, have the students sharpen their senses in the classroom. For instance, to focus on touch, have them close their eyes, send energy to their fingertips and begin feeling the different textures around them. Have them imagine how each of these textures would look if they did a crayon rubbing of them.

For the trip outside, you can either divide the class into teams, each focusing on a different sense, or you can have the entire class tune in to the same sense.

If you choose the team approach, divide the class into a SIGHTS team (or separate SHAPES, COLORS and PATTERNS teams), a SOUNDS team, a SMELLS team, and a TEXTURES team. (Tasting should be omitted or relegated to someone with knowledge of edible plants). Emphasize that the most effective equipment students have for this exercise are their own eyes, ears, noses and hands. Have each team select a reporter responsible for communicating the team's "finds" to the rest of the class. Give all students worksheets or let them make their own worksheets on which they are to name and describe each of the team's discoveries. Once outside, arrange a time and place for all to gather and report on their finds. When possible, have each team lead the class to the site of their most interesting discovery. Later, you may use the words on the worksheets for follow-up language arts activities.

Extending the Exercise: You might have the students try to capture -- on paper, film, tape -- the sensory discoveries they make. One of the simplest media for doing this is crayon and paper. CRAYON RUBBINGS of everything from leaves to man-hole covers are a great way to explore TEXTURES and a favorite of students of all ages. Rubbings of the covers of water meters, gas connections and other such items imbedded in the sidewalk can lead to a whole other unit on the 'underground' city -- the sewer systems and pipelines upon which our city lives depend. The SIGHTS team can develop a 'landmarks' map of the neighborhood, using their own sketches or a camera. Similarly the SOUNDS team can mimic or tape-record car honks, bird songs and other city sounds and develop a CITY SOUNDS SYMPHONY. In playing back the tapes of sounds, we have had students express the feeling of these through crayon drawings. The SMELLS team can collect small samples of aromatic leaves and flowers from the neighborhood. (Avoid collecting living materials except for classroom demonstration). Or, they can bring herbs and spices from home and design a smells discrimination test for the rest of the class. Given this start, you and your students can dream up many more ways to extend these exercises.

city senses

I am on the ______________ team.

My team reporter is ______________.

We are taking along the following equipment: ______________

____

Below I name and describe each of our discoveries:

NATURAL		HUMAN-MADE	
name	description	name	description

An ✱ is next to our most interesting discovery.

name: ______________
date: ______________
location: ______________
weather: ______________

Treasure Hunts And Surveys

Treasure hunts can turn any walk into an adventure and the possibilities for "treasure" hunt ideas are limitless. You might give each student a different item to look for or assign the same item to several students and see how their interpretations differ. There are no 'right' answers. Have the whole class make up lists of items. When you ask the students to count and categorize as many of one item as possible, the treasure hunt turns into a survey. Surveys also have endless possibilities. They can be conducted in a 20-minute walk or expanded into a month-long project.

TREASURE HUNTS

Items to find: (Add your own!)

- something that can't be photographed
- a relic of the past
- something humorous
- something like you
- a sign of caring
- a hiding place
- a monster
- a message
- a sign of carelessness
- a warning or threat
- something precious
- an omen of the future
- something scary
- a sign of fear
- patriotism

SURVEYS

Parks, sidewalks, streetcars: How are they used and by whom?

Bumperstickers or posters: What do they tell you about the opinions and beliefs of people in the neighborhood?

Street life: How many people, what age groups, what ethnic groups, what activities?

Graffiti: What are people communicating?

Trash: What is the source of the trash? What are people communicating?

THINGS TO COUNT

- public trash cans
- public telephones
- public restrooms
- places to plant
- bus stops
- animals
- flowers
- swings
- trees
- birds
- kinds of architecture
- broken windows
- burglar alarms
- churches
- rules

trash

BRING a bag along to put trash in.

COLLECT examples of different kinds of trash.
What kind is most common?

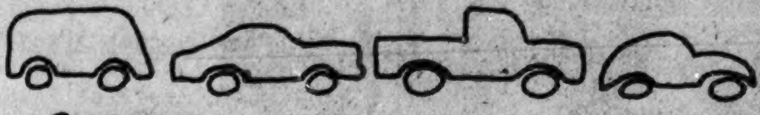
LIST five clues that this trash gives you about the neighborhood:

1.
2.
3.
4.
5.

GIVE two suggestions for decreasing the amount of trash in the neighborhood:

1.
2.

traffic



CHOOSE a busy intersection.

COUNT the number of cars that drive by in 2 minutes:

ESTIMATE how many cars might drive by in 1 hour:

LIST five ways in which the neighborhood might be different if there were no cars:

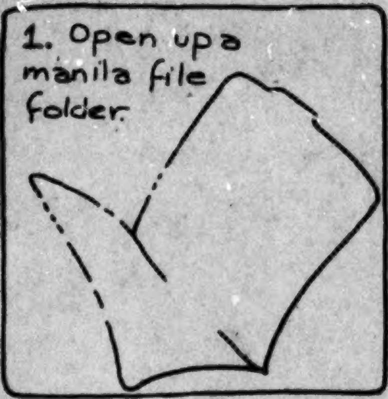
1.
2.
3.
4.
5.

Who Needs Parker Bros.

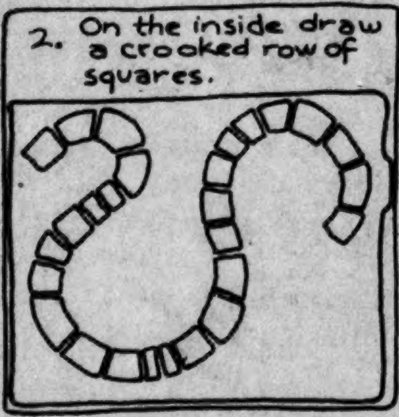
Within each one of the students are resources for creating personal games and fantasies. These become especially important in recalling experiences and creating new ones. Making game boards, for instance, can occupy a child for hours and the useful product of this creativity can bring forth memories of happy fieldtrips and can be shared with friends. The diagrams around these pages can start your students off on a whole new form of expression.

No materials at all are needed for imagination exercises, and the imagination can be a very powerful tool for learning. Students who have difficulty with verbal, linear ways of thinking can often grasp concepts through fantasy. We have used imagination exercises to teach biological processes and cycles to chart changes in the environment and to increase empathy with other living creatures.

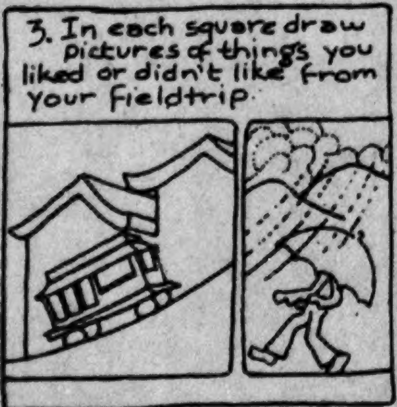
Start



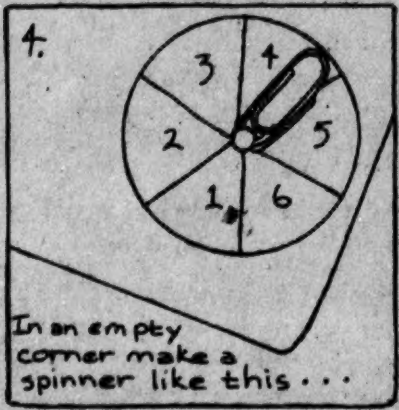
1. Open up a manila file folder.



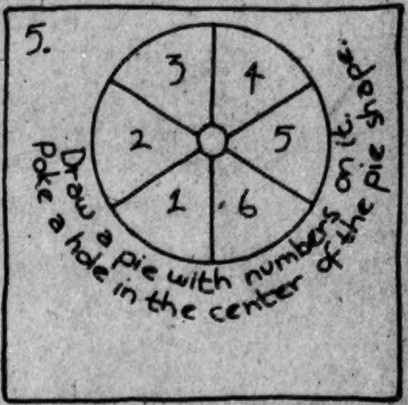
2. On the inside draw a crooked row of squares.



3. In each square draw pictures of things you liked or didn't like from your fieldtrip.



4. In an empty corner make a spinner like this . . .

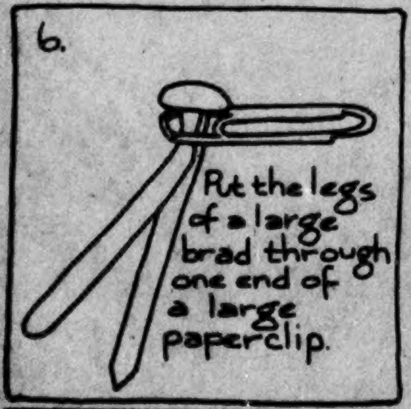


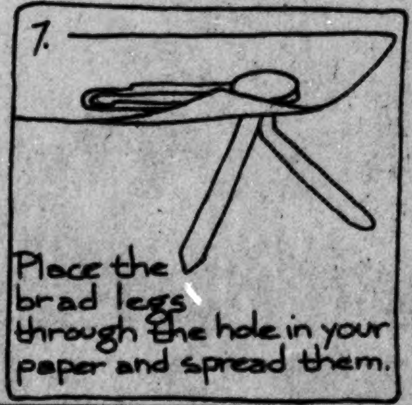
5. Draw a pie with numbers on it. Poke a hole in the center of the pie shape.

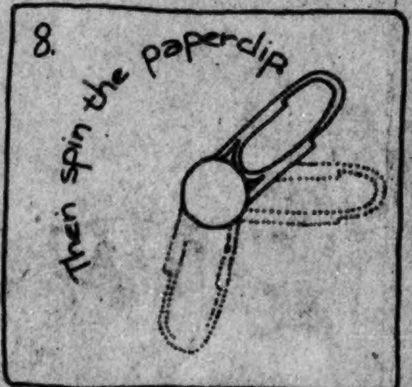
Anyway?

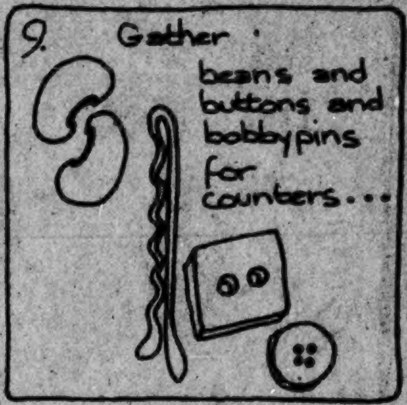
These exercises work best when students have already studied some basic facts beforehand. In designing your own exercises, however, avoid potentially scary situations. The imagination can evoke powerful feelings and, while negative images of pollution, bulldozers and traffic jams may teach ecological lessons, these need only be suggested, not dwelled upon.

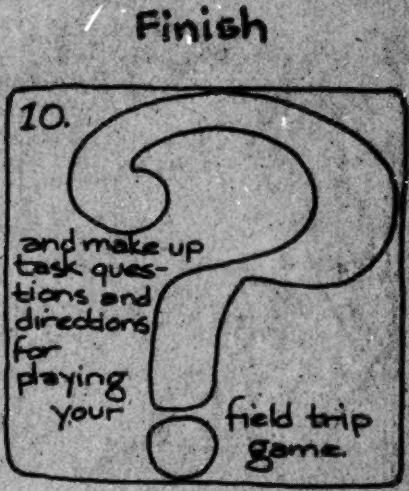
On the next page we give you an example of a guided imagination exercise in which students become a bean sprout. In preparing for it give each student a bean to hold. Have them sit in comfortable, relaxed positions. Ask them to close their eyes and take a couple of slow, deep breaths. Then ask them to relax each part of their bodies as you name it, starting with the feet and moving upward. Once the class is relaxed and quiet, slowly guide them through the imagination exercise, pausing after each sentence.


6.
Put the legs of a large brad through one end of a large paperclip.


7.
Place the brad legs through the hole in your paper and spread them.


8.
Then spin the paperclip

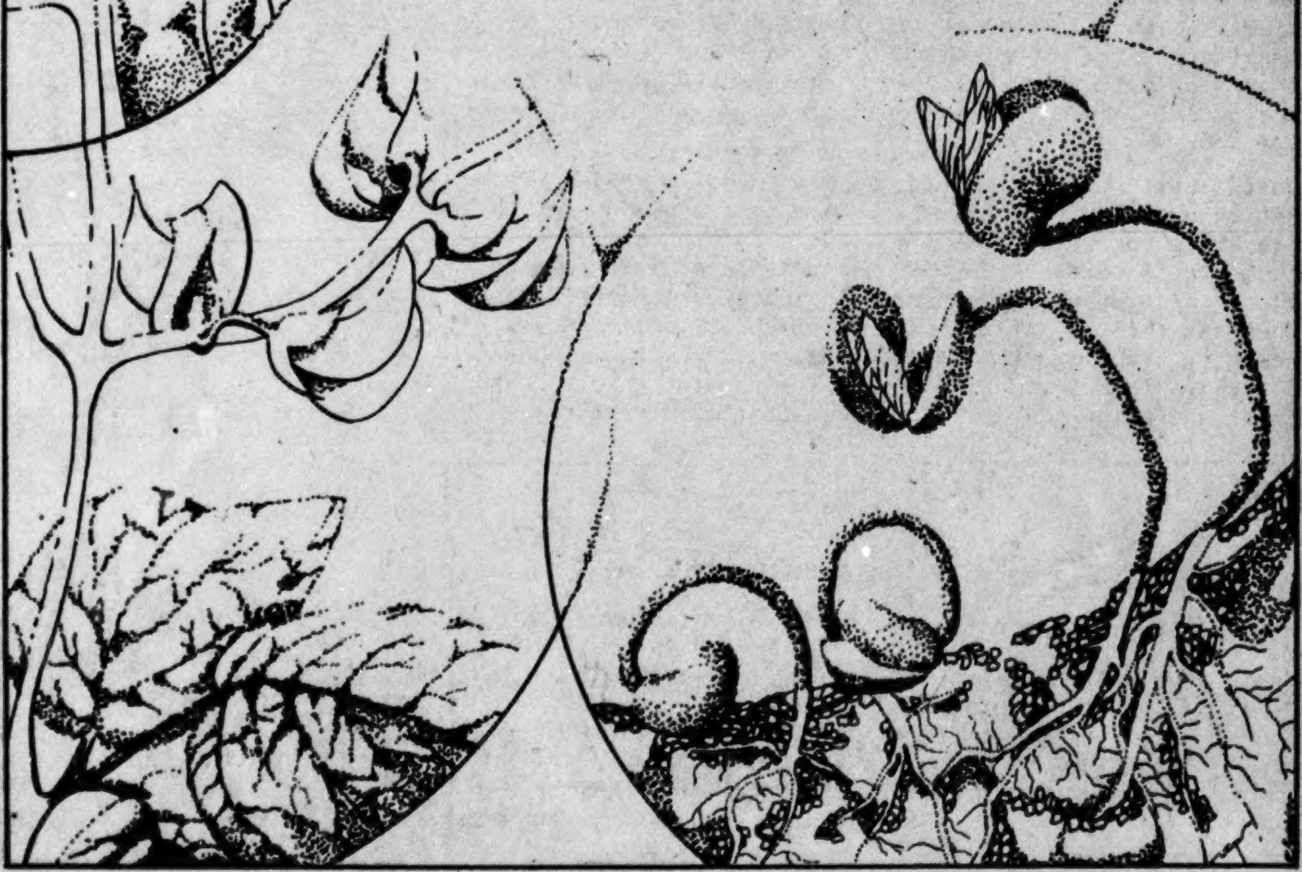

9.
Gather beans and buttons and bobbypins for counters...


Finish
10.
and make up task questions and directions for playing your field trip game.

imagine

Imagine that you are a bean, planted in the cool, moist Earth. Feel yourself soaking up moisture from the Earth and beginning to swell. New life stirs within you. You put out a small, white shoot. This shoot becomes a stem, pushing you up, up, through the dark Earth and toward the light. At last you push through the last bit of soil. Breathe in the fresh air. Feel the warm sun. Within you two tiny leaves are growing. They grow and grow until they split the fleshy bean into two halves. Feel your two new leaves emerge and grow and begin to turn green in the sunlight. Imagine them using the sun's energy to make your food. Your stem is now strong and straight. Under the Earth it is putting down roots which anchor you in the soil and soak up water and minerals. Become your roots, deep in the cool Earth. Feel yourself drawing up minerals through these to your leaves. Feel the food from your leaves moving up toward your growing tip, and unfurl in the sunshine. Feel the warm sun. Now feel your whole self swaying in the gentle breeze and soaking up the warmth of the sun. Become aware of what color you are and how your leaves are shaped. Look around you. Become aware of your surroundings.

When you feel comfortable, slowly open your eyes and, in silence, return to the room.



TREASURE HUNT

Find something that is changing:

at a predictable rate
at an unpredictable rate

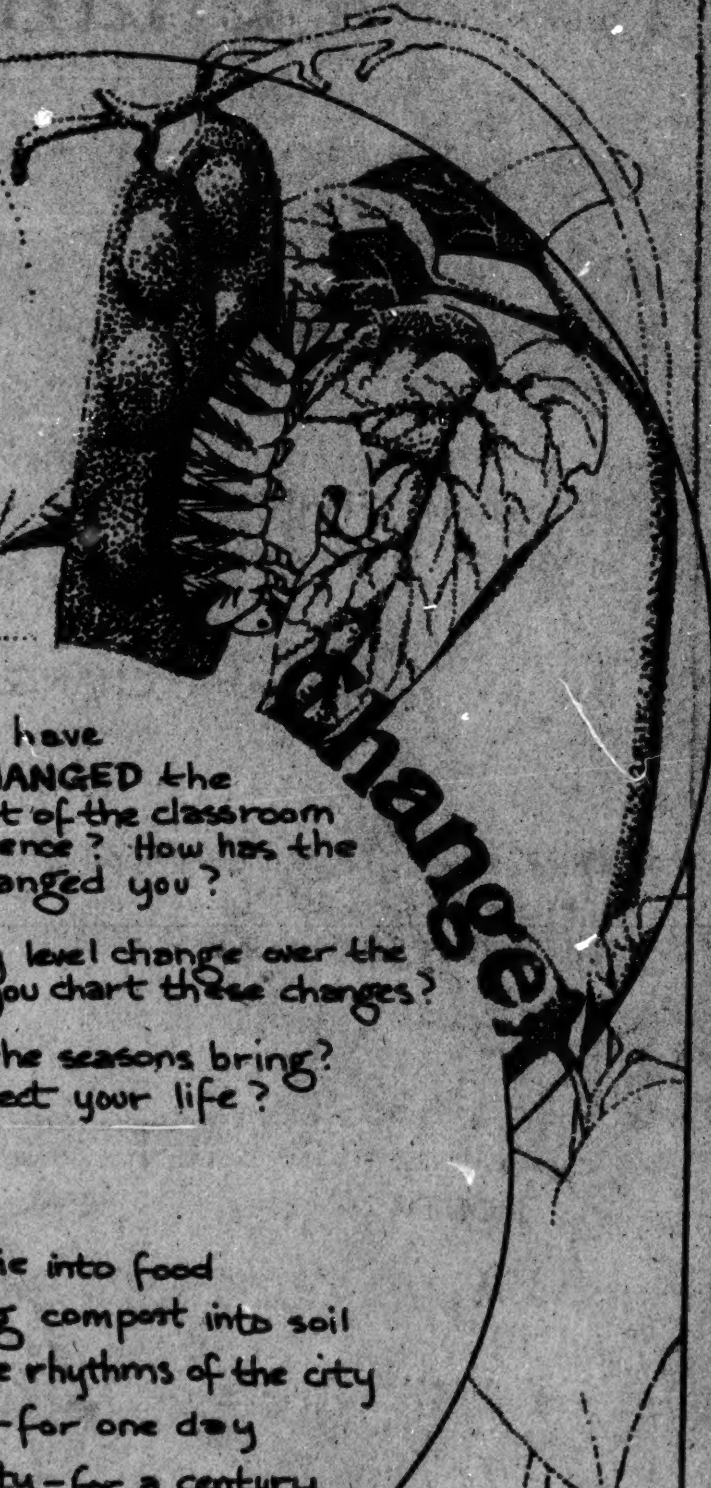
in minutes
over centuries

in size but not in number
in number but not in size

in cyclic fashion
in linear fashion

due to natural conditions
due to artificial conditions

in form
in function



How have you CHANGED the environment of the classroom by your presence? How has the environment changed you?

How does your energy level change over the course of the day? Can you chart these changes?

What changes do the seasons bring? How do these affect your life?

IMAGINE YOURSELF:

a plant turning sunshine into food
an earthworm turning compost into soil
a bird watching the rhythms of the city
a tree in a park – for one day
a hill in the city – for a century

a worksheet on **change** for a rainy day

1. What in your classroom is **CHANGING**?

2. How have you **CHANGED** your classroom since you came in today?

3. If you could **CHANGE** anything in your classroom that you wanted to, what would you change?

4. How does rainy weather **CHANGE** your day?

5. Think about the neighborhood around your school. How might it have looked 100 years ago? List things that would be **DIFFERENT** about it:

6. Imagine that a building near your school was torn down leaving a vacant lot. List below how the lot might change in a

MONTH **YEAR** **FIVE YEARS**

Sketch these changes (on the back or on another sheet of paper).

changes

My team is looking for CHANGES that are

1. __________________ and 2. __________________

My team reporter is ____________________________

The CHANGES we found are:

1.	2.

NAME: DATE: LOCATION:

Mime, Movement

Children doing the BECOMING A BEAN SPROUT exercise often quite spontaneously begin to move like the bean sprout, standing up and extending their arms as the sprout grows taller and puts out leaves. In this way they empathise with the bean sprout, with their muscles as well as their imaginations.

> em-pa-thy ('em-pe-thē) n. the capacity for participating in another's feelings or ideas.

One of the purposes of our work is to help students empathize with the other beings - plants, animals, people - in their environment. Combining movement with imagination makes the empathy that much stronger. And the possibilities for doing this are endless.

It's best to start with simple, short exercises in the classroom until the students become comfortable with this mode of learning. Warm-ups are helpful. Have students stand up and reach for the ceiling, stretching first one arm and then the other, several times, then flop down with the hands touching the floor and knees comfortably bent and bounce ...bounce...bounce, keeping neck and arms as loose as possible (repeat). You can follow this by having each student become a rag-doll, going limp and shaking arms, legs and head in all directions. Another good warm-up is a game of "Simon Says" with frequent changes of leader.

Often movement can be easily introduced in the outdoors, on a nature hike or at the beach. For instance, as the class is walking up a slope, have them all become heavy-footed as a pack of mules bearing great burdens, then light-footed as deer. Let the students think of other animals they can become. Or, you can explore more subtle expressions - moving like wind and sea, fire and water, sun and moon. To help students develop a sense of different personalities with body movement, have them do the 'walking' exercise as follows:

> Begin walking around the room. Imagine that a string is attached to your chin and is being pulled straight forward. Walk, leading with your chin. How do you feel doing this? What kind of personality do you imagine yourself? Where are you going? How are you dressed? What are you thinking about?

Have the students transfer the imaginary string to other parts of their bodies - chest, feet, stomach, etc. - and develop characters to match each different walk. You can extend this into a game of 'on-the-street' interviews by giving one student an imaginary microphone and the role of reporter and having him or her conduct interviews with the various characters as they walk by. This helps students overcome shyness and prepares them for doing their own real 'on-the-street' interview later.

& Interviews

Interviewing is a useful technique for getting students better acquainted with their neighborhood and city. Interviews can be conducted simply to learn other people's impressions of their environment or as parts of in-depth studies of how a city functions. In the former case, students can conduct brief interviews on-the-spot any time. With detailed studies involving lengthy questionnaires, however, they have to make appointments ahead of time with the people they wish to interview. Before sending students out on these interviews it is helpful to conduct role-playing sessions in the classroom, having students take the roles both of the interviewer and of the person being interviewed. This serves to sharpen their questions, lessen their self-consciousness, and increase their empathy for the other person.

"on-the-street" interview

ASSIGNMENT: You are a reporter gathering information for a news broadcast on neighborhoods. Stop people on the street and ask them whether they will participate in a survey on this neighborhood. If they agree, ask them the following questions. If they say "no," thank them and move on to someone else.

1. Do you live or work in this neighborhood? If yes, why did you choose this location?

2. What do you LIKE about this neighborhood?

3 What do you DISLIKE about this neighborhood?

4. What can be done to make this a BETTER place to live and work?

Location: ______________________ Date: ______________________
(Street names)

Neighborhood: ______________________ Interviewer: ______________________

neighboorhood shopkeeper **interview**

1. How long have you been in business here?
2. Why did you choose this location?
3. Does the shopowner live in the neighborhood? the city? out-of-town?
4. How many employees live in the neighborhood? the city? out-of-town?

CUSTOMERS:

	MOST		HALF		FEW
5. How many of your customers live in the neighborhood? (circle one)	1	2	3	4	5
6. How many are regular customers?	1	2	3	4	5

Where do you get your **SUPPLIES?**
How many of your suppliers are

7. In the neighborhood?	1	2	3	4	5
8. In the city?	1	2	3	4	5
9. Out-of-town?	1	2	3	4	5
10. Out-of-state?	1	2	3	4	5
11. Outside the U.S.A.?	1	2	3	4	5

12. With what foreign countries, if any, do you do business?

13. Are you in contact with other shops in the neighborhood?
If so, in what ways?

14. In what ways does your shop benefit the neighborhood?

15. In what ways would you like to see the neighborhood improved?

Shop name: ____________________

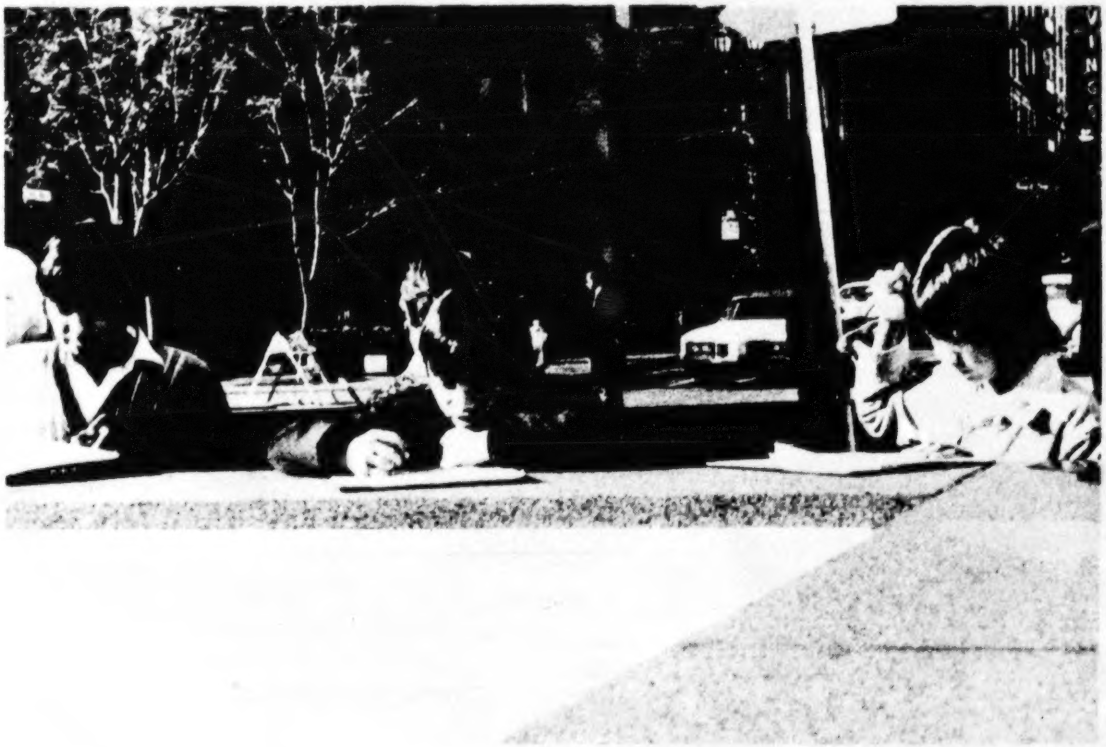
Location: ____________________
(street names)

Neighborhood: ____________________

Date: ____________________

Interviewer: ____________________

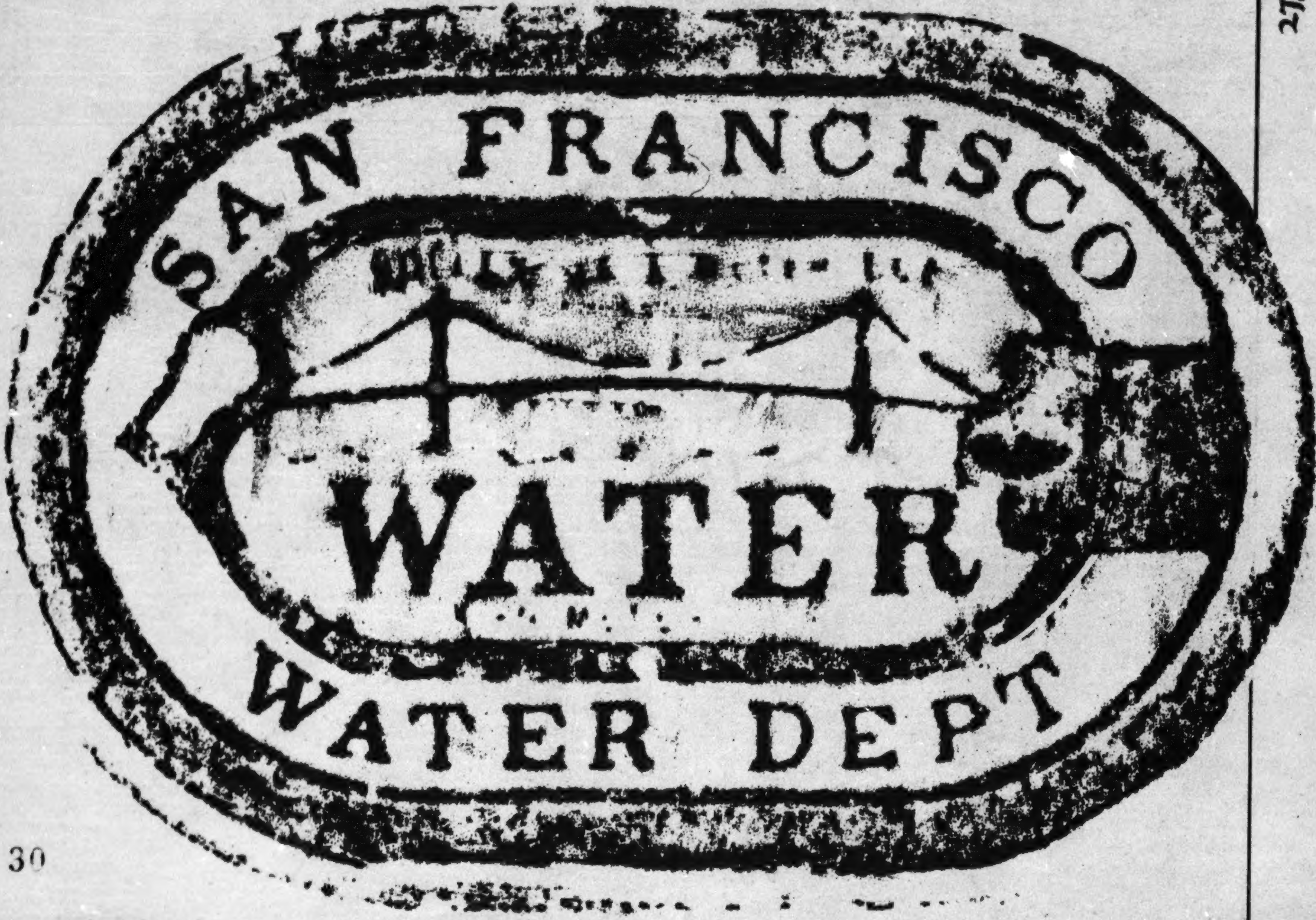
Person interviewed: ____________________
(position)



Using The City Streets To Find Art At Your Feet

One approach to studying the streets is to divide the class into three teams -- the overhead, underfoot and eye-level teams. In studying forest communities, ecologists distinguish between the tree-top, forest floor and several in-between habitats. We adapted this to the streets. Each team explores the same block but with a different set of questions. We have developed complementary sets of questions for use in wooded areas (see pp. 36-38).

Our CITY STREETS worksheet includes a valuing exercise. Not only do students answer questions about the environment, but they express how they feel about it as well.


SAN FRANCISCO
WATER
WATER DEPT

27.

1. Look down at the ground. **LIST** the things you see:

2. How much of the ground (soil) is covered with concrete or asphalt? Make an **ESTIMATE**. Circle one:

   1/4 1/2 3/4

3. **PUZZLER**: In what ways do you think this soil is different from the soil that is not covered? (Do some research on this back in the classroom.)

4. Find a patch of **GRASS** – at the base of a tree or in a crack in the sidewalk. Count the number of **INSECTS** you can find in this patch. How many? ____________

5. Now, count the number of grass patches in this (or part of this) block. How many? ____________
   ESTIMATE the total number of insects on the block: ____________

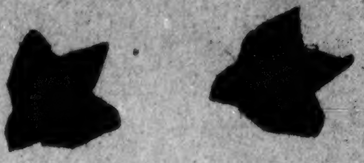
6. What's **UNDERGROUND**? Look at the sidewalk for **MARKERS** and metal or concrete **COVERS**. Below list 3 different kinds and what you think is under each of them:

	TYPE of COVER	WHAT'S UNDER IT?
1)		
2)		
3)		

7. Make **CRAYON RUBBINGS** of the covers.

underfoot team

overhead team



1. Look up above your head. **LIST** the things you see:

2. Put a check(✓) beside each of the things listed above which can send or receive **MESSAGES**.

3. Look at the **TELEPHONE POLES**. How many houses are connected to each pole? ____________

   Suppose this neighborhood has 800 telephone poles in it; **ESTIMATE** the number of houses in the neighborhood: ________

4. **PUZZLER:** If your house did not have any electric wires going to it, how might your life be different?

5. **PUZZLER:** How far back can you trace the source of the **ENERGY** that makes the telephones and television sets work?

6. How many **BIRDS** can you count on the telephone lines, TV antennas and rooftops? ______________

   How do the birds send messages to one another?

7. If you were a bird who liked living up high, where might you find places on this street to make your home?

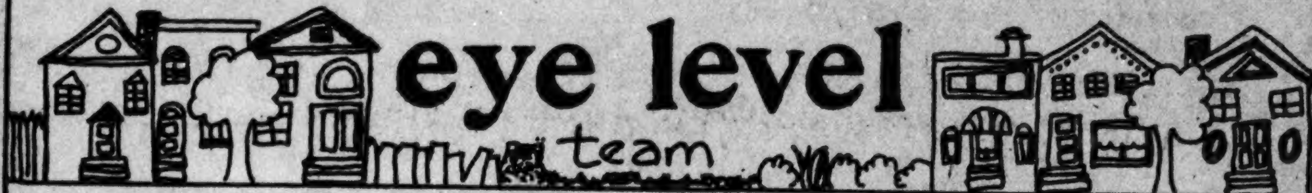
1. Look around at eye-level. LIST the things you see:

2. Put an * before the things that are LIVING. Put ** before any living thing which is an ANIMAL.

3. If you were a small city animal who lived at eye-level, where might you find places on this street to make your home?

4. How many different kinds of TREES can you see? __________

5. Feel the BARK on a tree. Make a CRAYON-RUBBING of it.



6. Look at the HOUSES. Notice the colors they are painted. What color combination do you like best?

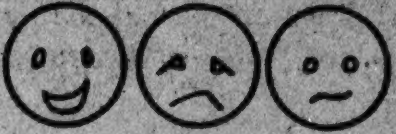
7. Notice the shapes of the WINDOWS. Below draw 3 different window shapes:

8. How many CARS can you count from where you are standing? __________
How many garages and driveways? __________ ESTIMATE the amount of space cars take up on this block (circle one): 1/4 1/2 3/4

9. PUZZLER: Imagine that all the people on this block switched from cars to bicycles. What might they do with the extra space? (Answer on the back)

city streets

Draw in a FACE to show how you feel about each answer:



○ 1. Breathe deeply. How does the AIR smell?

○ 2. Close your eyes. What kinds of SOUNDS do you hear?

○ 3. How many CARS go by in a minute?

○ 4. In what ways do CARS take up space here?

○ 5. How many BILLBOARDS can you count here?

○ 6. Would you feel SAFE playing in this area?

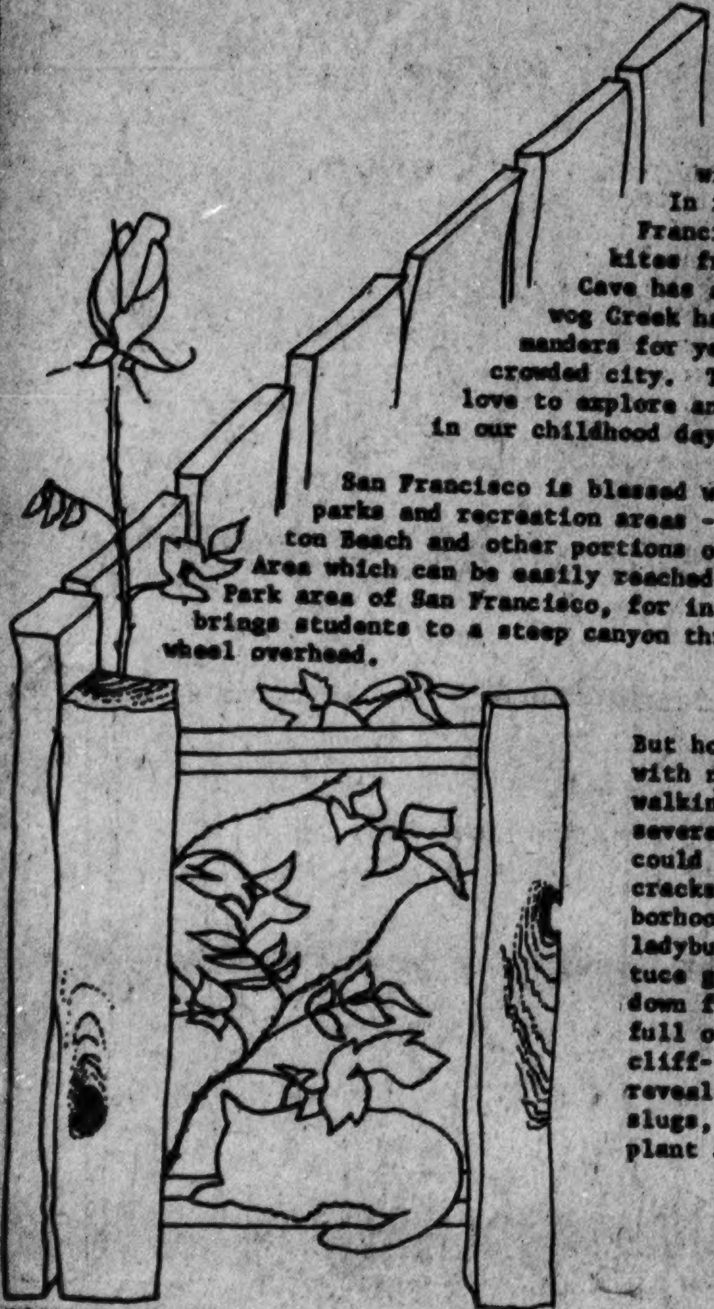
○ 7. Find a friendly PERSON. Ask him/her how s/he feels about this place. Reply:

8. List 3 things you LIKE about this place:

9. List 3 things you DON'T LIKE about this place:

10. Make up a NAME for this place:

Wild Places In Parks



Have you ever heard of Rocky Mountain, Goat Rock, Pirates Cove or Polywog Creek? These names sound as if they come from some far-off place, perhaps a wind-swept island once used by smugglers. In fact, these places are all here in San Francisco. For generations children have flown kites from Rocky Mountain and Goat Rock. Pirates Cave has attracted many a treasure hunter and Polywog Creek has supplied homes with pet frogs and salamanders for years. These are all wild places in this crowded city. These are the kinds of places that children love to explore and which we adults can remember exploring in our childhood days.

San Francisco is blessed with such places. Many are in established parks and recreation areas -- Angel Island, Golden Gate Park, Thornton Beach and other portions of the Golden Gate National Recreation Area which can be easily reached by public transportation. In the Glen Park area of San Francisco, for instance, a short walk from the BART station brings students to a steep canyon through which a natural creek flows and hawks wheel overhead.

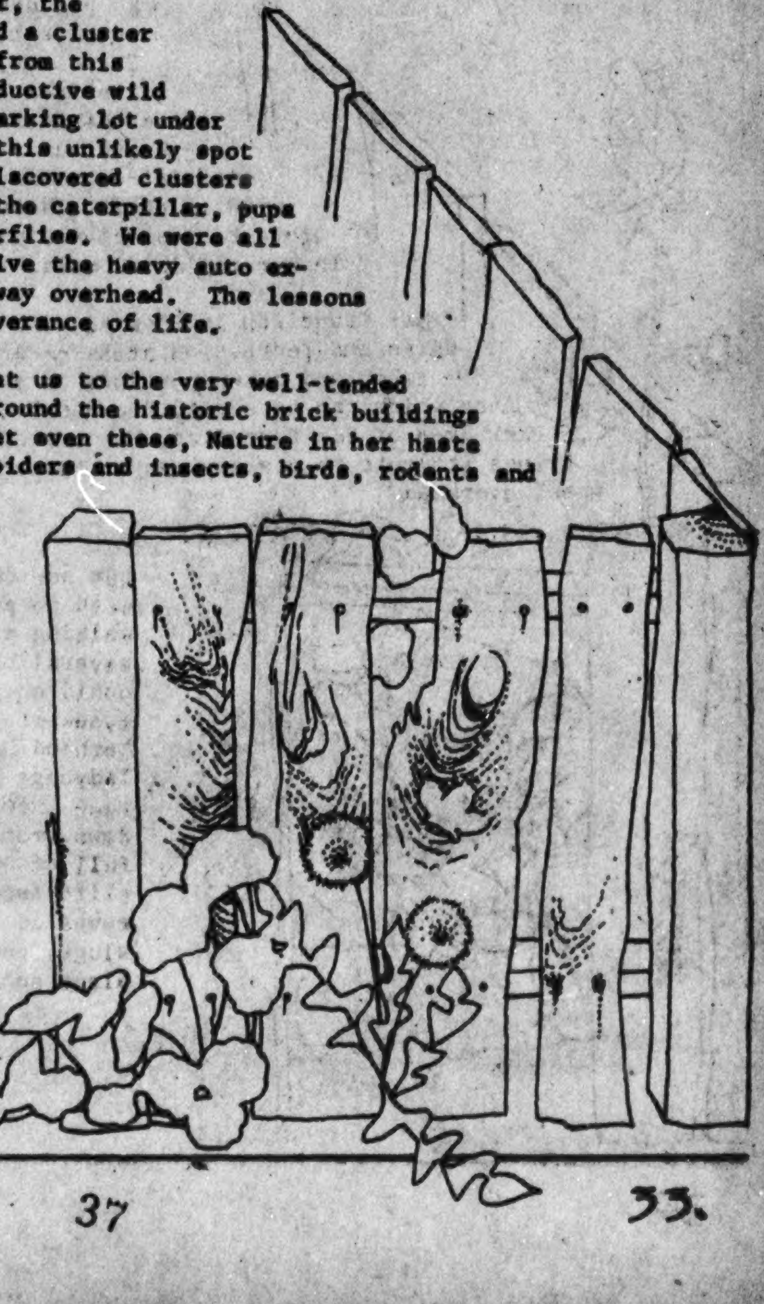
But how do teachers and students in schools with no parks nearby find wildlife within walking distance? The wild places around several of the schools with which we worked could only be found in hidden corners and cracks. Sometimes children in the neighborhood helped us locate the places where ladybugs prowled for aphids and miner's lettuce grew. Or we peered over fences and down from hilltops to discover vacant lots full of wildflowers, grass and insects. A cliff-face or a concrete embankment often revealed the criss-crossing trails of banana slugs, and cracks in the sidewalk held tiny plant and animal communities.

And Parking Lots

Finding wildlife near some schools, however, seemed hopeless. Washington Irving Elementary School, for instance, located on Broadway near Montgomery Street, is bounded by the "topless" district, the Financial District, the freeway, and a cluster of warehouses. And yet, one block from this school we found one of our most productive wild places -- the untended edges of a parking lot under the freeway on-ramp! Every day in this unlikely spot children, with shouts of delight, discovered clusters of insect eggs, a bird's nest, and the caterpillar, pupa and adult stages of moths and butterflies. We were all amazed that so much life could survive the heavy auto exhaust and traffic noise of the freeway overhead. The lessons here were of survival and the perseverance of life.

A short walk past the freeway brought us to the very well-tended trees, shrubs and planters in and around the historic brick buildings and alleyways of Jackson Square. Yet even these, Nature in her haste to balance life filled with tiny spiders and insects, birds, rodents and reptiles, creating miniature wild places amongst the office buildings.

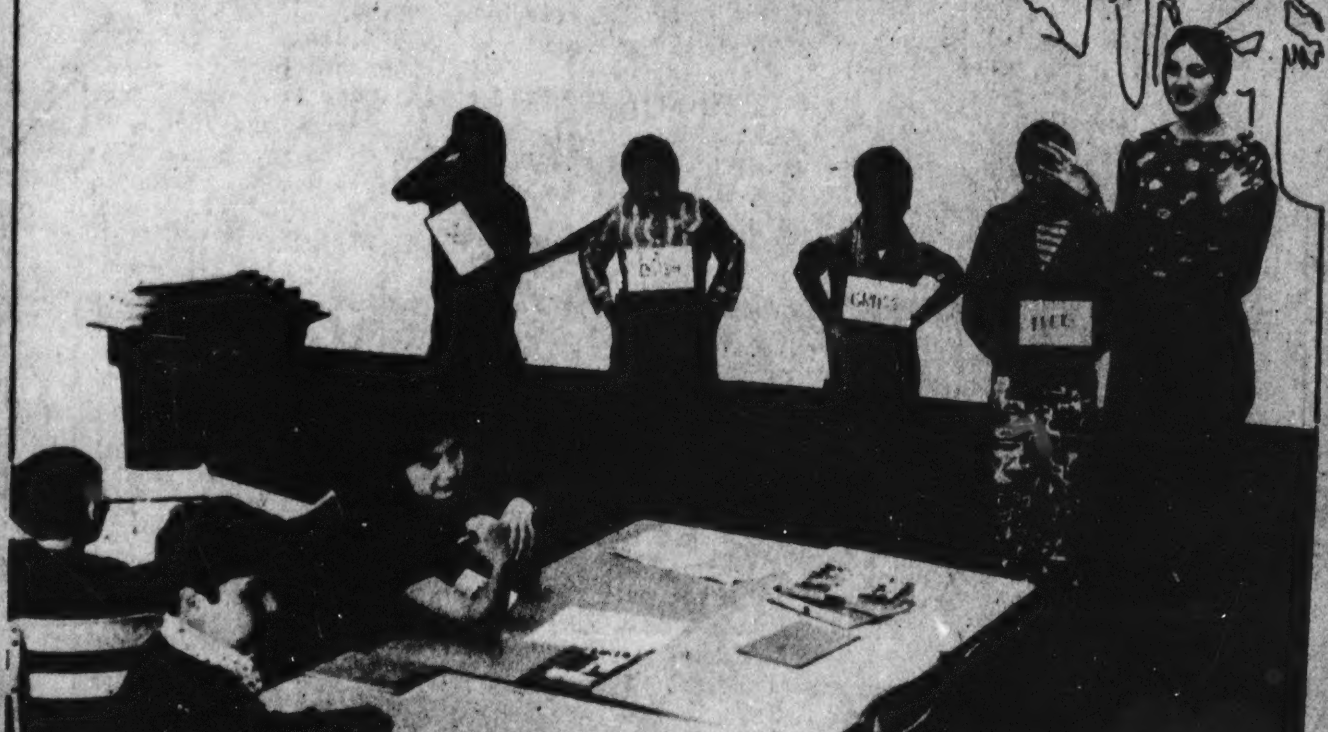
The worksheets on the following pages are to help you and your students focus on the balances in our human and natural environments. We found that using the same worksheet in two or three different places revealed contrasts which could be discussed and further researched back in the classroom. The 'Overhead', 'Underfoot' and 'Eye-level' worksheets included here are designed for use in a wooded area and complement the corresponding three worksheets (pp.28-30) designed for use in a city neighborhood.



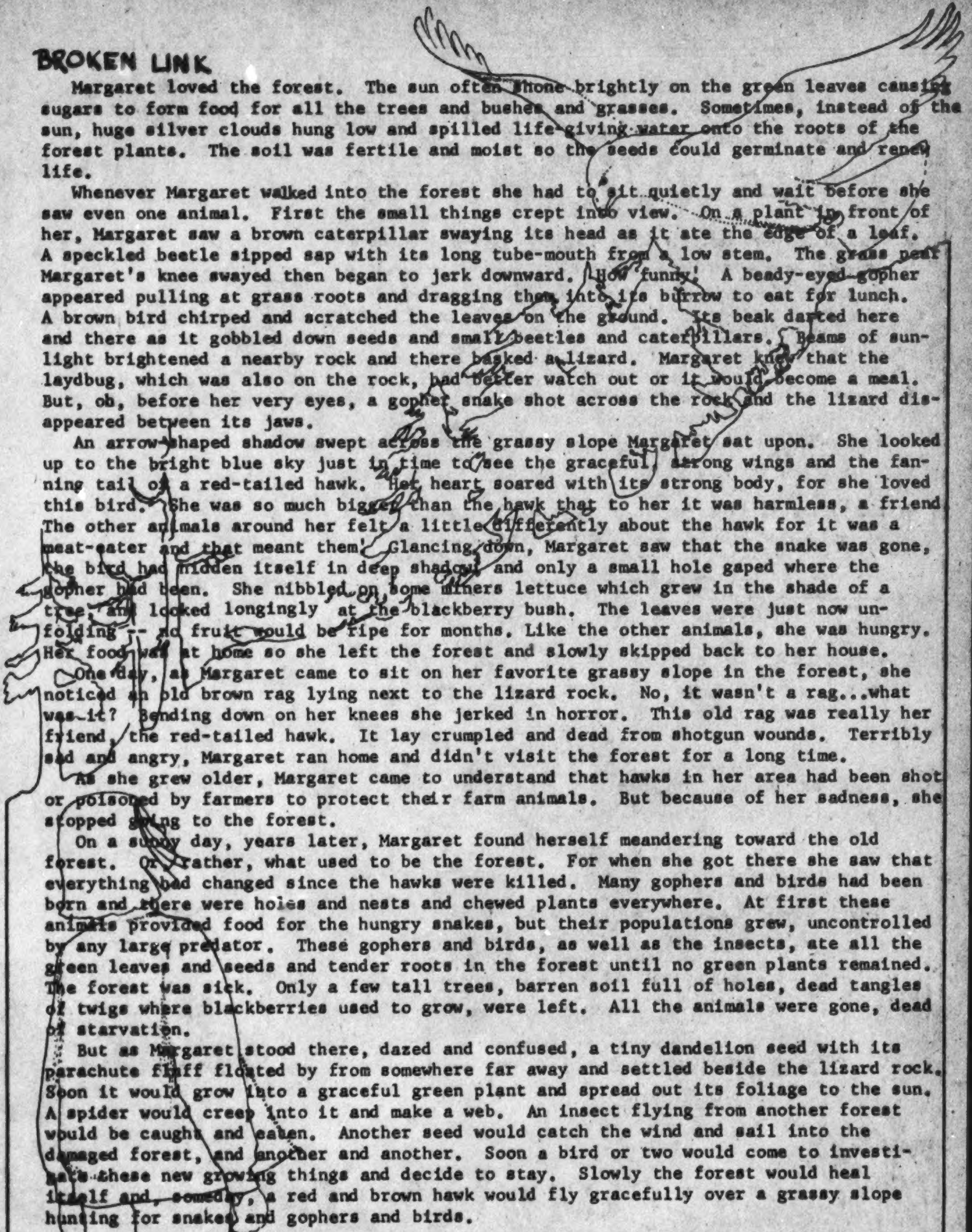
Links With Life

Often, when we see a bird fly by, or a cluster of aphids on a rosebud, we see them as isolated organisms creating beauty in our lives or problems in our gardens. But, each form of life, no matter how small, is a unique piece of Nature's puzzle. Each piece fits together like links in a chain to create endless channels along which life forces, nutrients and energy flow. This happens in the Earth's soil and in the turbulent atmosphere and in our bodies. Some acts such as oil spills, refuse in marsh lands, or industrial wastes in the air, destroy links in these vital chains.

Part of the awareness students gain from trips outdoors is a greater understanding of their role in this puzzle. To help prepare your students for field trips we have written this short story about Margaret who observes a break in the chain's linkage. Reproduce the story for the class to read. Have students make signs for the plants and animals and resources, and role-play the story's situations. Talk about what herbivores, carnivores and omnivores need for survival. Ask what is the role of predator-prey in the environment (including ours in the city). How can human needs be met without destroying natural cycles? How will the new animals and the forest survive next to the farms? Make game boards using concepts from the story.



BROKEN LINK



Margaret loved the forest. The sun often shone brightly on the green leaves causing sugars to form food for all the trees and bushes and grasses. Sometimes, instead of the sun, huge silver clouds hung low and spilled life-giving water onto the roots of the forest plants. The soil was fertile and moist so the seeds could germinate and renew life.

Whenever Margaret walked into the forest she had to sit quietly and wait before she saw even one animal. First the small things crept into view. On a plant in front of her, Margaret saw a brown caterpillar swaying its head as it ate the edge of a leaf. A speckled beetle sipped sap with its long tube-mouth from a low stem. The grass near Margaret's knee swayed then began to jerk downward. How funny! A beady-eyed gopher appeared pulling at grass roots and dragging them into its burrow to eat for lunch. A brown bird chirped and scratched the leaves on the ground. Its beak darted here and there as it gobbled down seeds and small beetles and caterpillars. Beams of sunlight brightened a nearby rock and there basked a lizard. Margaret knew that the laydbug, which was also on the rock, had better watch out or it would become a meal. But, oh, before her very eyes, a gopher snake shot across the rock and the lizard disappeared between its jaws.

An arrow-shaped shadow swept across the grassy slope Margaret sat upon. She looked up to the bright blue sky just in time to see the graceful, strong wings and the fanning tail of a red-tailed hawk. Her heart soared with its strong body, for she loved this bird. She was so much bigger than the hawk that to her it was harmless, a friend. The other animals around her felt a little differently about the hawk for it was a meat-eater and that meant them! Glancing down, Margaret saw that the snake was gone, the bird had hidden itself in deep shadow and only a small hole gaped where the gopher had been. She nibbled on some miners lettuce which grew in the shade of a tree, and looked longingly at the blackberry bush. The leaves were just now unfolding -- no fruit would be ripe for months. Like the other animals, she was hungry. Her food was at home so she left the forest and slowly skipped back to her house.

One day, as Margaret came to sit on her favorite grassy slope in the forest, she noticed an old brown rag lying next to the lizard rock. No, it wasn't a rag...what was it? Bending down on her knees she jerked in horror. This old rag was really her friend, the red-tailed hawk. It lay crumpled and dead from shotgun wounds. Terribly sad and angry, Margaret ran home and didn't visit the forest for a long time.

As she grew older, Margaret came to understand that hawks in her area had been shot or poisoned by farmers to protect their farm animals. But because of her sadness, she stopped going to the forest.

On a sunny day, years later, Margaret found herself meandering toward the old forest. Or rather, what used to be the forest. For when she got there she saw that everything had changed since the hawks were killed. Many gophers and birds had been born and there were holes and nests and chewed plants everywhere. At first these animals provided food for the hungry snakes, but their populations grew, uncontrolled by any large predator. These gophers and birds, as well as the insects, ate all the green leaves and seeds and tender roots in the forest until no green plants remained. The forest was sick. Only a few tall trees, barren soil full of holes, dead tangles of twigs where blackberries used to grow, were left. All the animals were gone, dead of starvation.

But as Margaret stood there, dazed and confused, a tiny dandelion seed with its parachute fluff floated by from somewhere far away and settled beside the lizard rock. Soon it would grow into a graceful green plant and spread out its foliage to the sun. A spider would creep into it and make a web. An insect flying from another forest would be caught and eaten. Another seed would catch the wind and sail into the damaged forest, and another and another. Soon a bird or two would come to investigate these new growing things and decide to stay. Slowly the forest would heal itself and, someday, a red and brown hawk would fly gracefully over a grassy slope hunting for snakes and gophers and birds.

1. Look at the ground around your feet. How many things do you see that are NOT animals? List them:

2. Now look for **ANIMALS**. Look underneath leaves and sticks. Turn over stones and spread the grass. List the animals you find below and draw them on the back of this paper.

3. Count all the plants and animals in an area the size of this paper.

How many **PLANTS**? ________ How many **ANIMALS**? ________

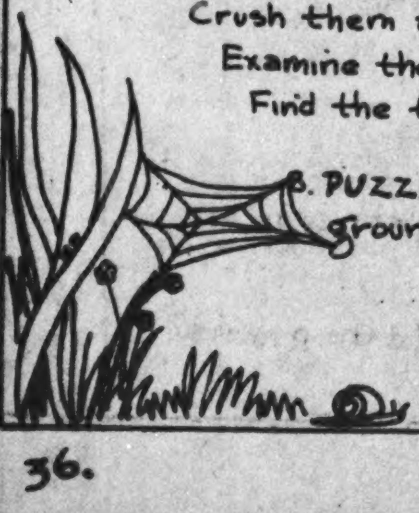
4. **ESTIMATE** the number of plants and animals that live on a plot of ground the size of 50 pieces of paper like this one:

________ **PLANTS** ________ **ANIMALS**
(number) (number)

5. **PUZZLER:** Where do the animals here get the **ENERGY** they need to grow and move? (Trace it back as far as you can.)

6. Find an animal **HOME** on your plot and draw it on the back of this paper. What kind of animal lives there?

7. Find four leaves on the ground that are different shapes and sizes.
Crush them and smell them.
Examine them for tiny animals, teeth marks, and eggs.
Find the trees to which they belong.



8. **PUZZLER:** What caused these leaves to fall to the ground?

underfoot team

overhead team

1. Look above your head. List the things you see there that are NOT animals:

2. Look up again. List the ANIMALS you see moving:

3. How do these animals move from place to place? List the ways:

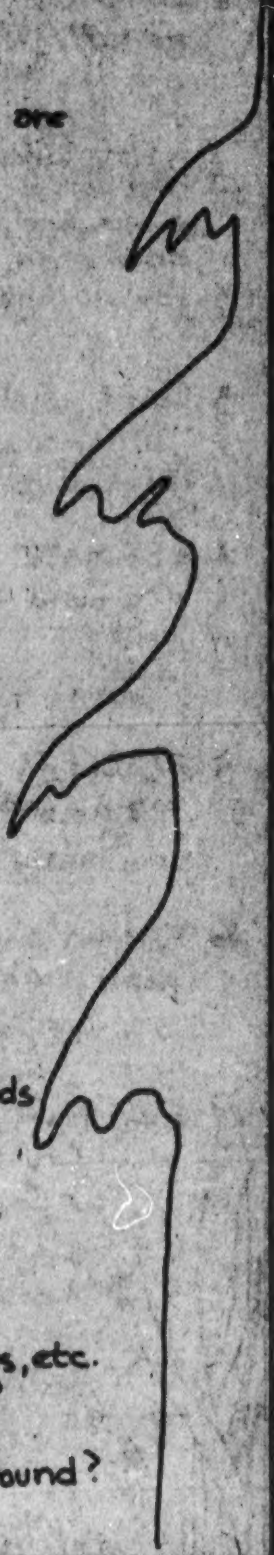
4. With a partner choose a TREE for exploration.
Look at the trunk. How many branches grow directly from it?

5. Look closely into the branches until you have found an ANIMAL.
What is this animal doing?
What does the animal eat?
Who eats this animal?

6. PUZZLER: Where does this animal get the energy it needs to move around? (How far back can you trace this?)

7. Find 4 LEAVES of different sizes and shapes.
Crush them and smell them.
Examine them for small animals, teeth marks, eggs, etc.
Find the trees to which they belong.

8. PUZZLER: what caused these leaves to fall to the ground?

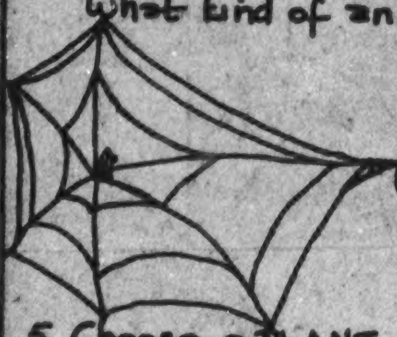


1. Look around you at eye-level. What things do you see that are NOT animals. List them:

2. What kinds of ANIMALS do you see moving? List them:

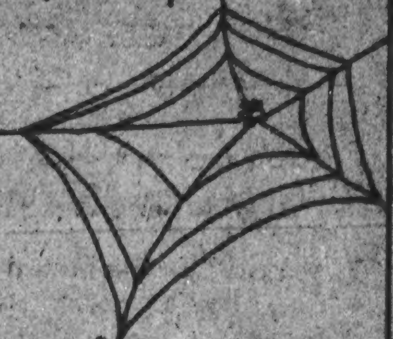
3. How do these animals MOVE from place to place? List the ways:

4. Find an animal HOME and draw it on the back of this paper. What kind of animal lives there?



eye level

team



5. Choose a PLANT. Examine closely its bark, leaves, flowers, etc. How many animals can you find on this plant?

6. Count the number of plants around you that are the same size as the one above. How many are there?
ESTIMATE the number of animals living on all these plants:

7. Find four things on your plant that might be FOOD for the animals you see.
Crush them and smell them.
Examine them for teeth marks and eggs.
Look for the animal that might eat them.

8. PUZZLER: How does your plant get its food and the ENERGY to grow?

Flowers

Choose a brightly-colored flower to study. Leave it on the plant so it can reproduce.

1. On the back of this paper draw the flower and label its parts.

2. Count the parts of the flower you drew. It has _____ petals, _____ stamen, and _____ pistil(s). The color(s) of the petals are ________________________________ and it is about _____ centimeters across.

3. What is the color of the POLLEN? __________

4. Flowers are the reproductive parts of plants. Many flowers need insects to carry pollen from the stamen to the pistil. When this happens tiny seeds deep in the ovary are fertilized and begin to grow. Now the plant can reproduce.

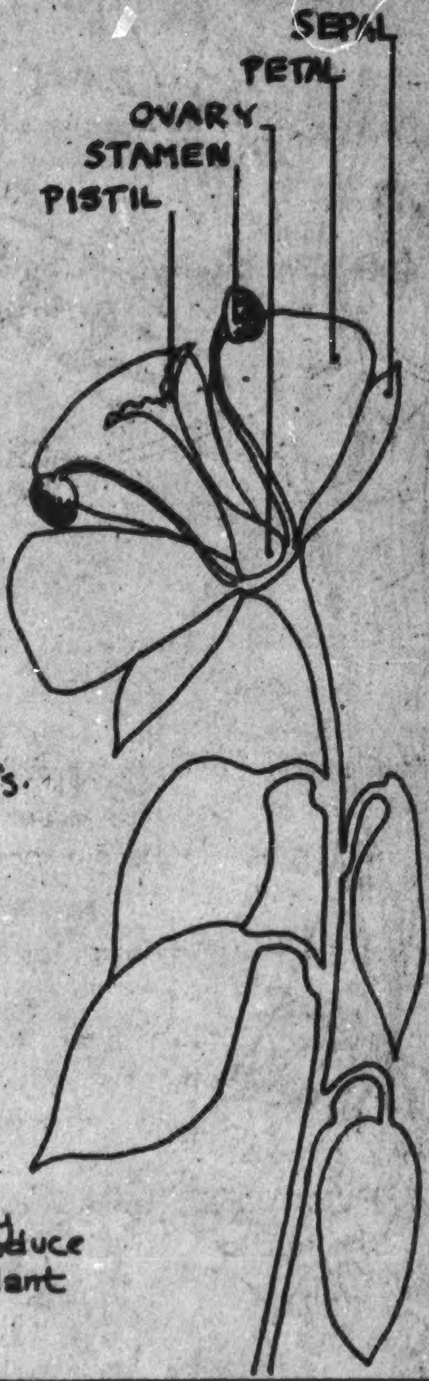
   What does REPRODUCE mean?

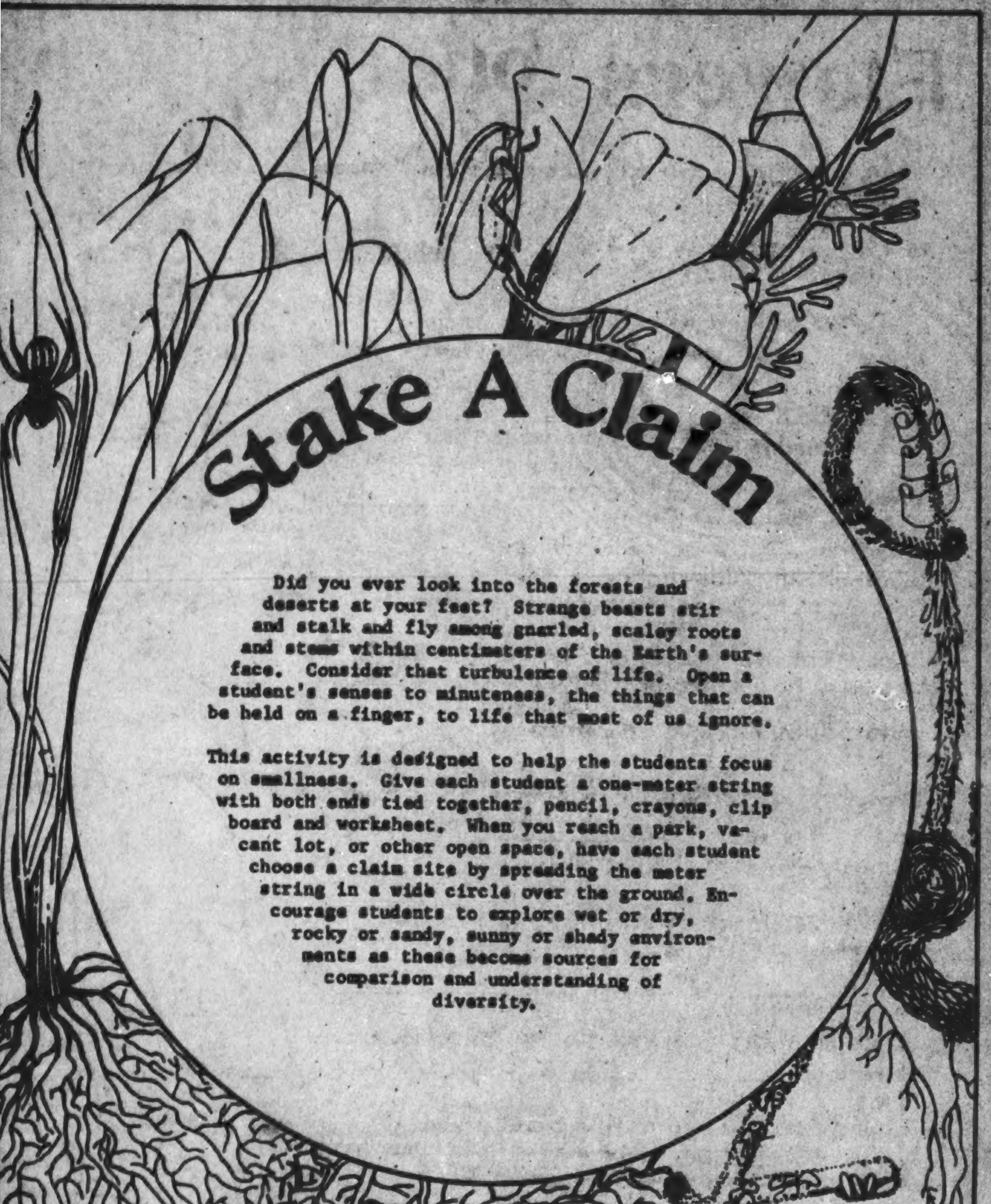
5. Look for an INSECT crawling in the flower's center. The insect is a __________. Are there pollen grains stuck to its body? ________

6. List three things that might attract an insect to this flower: 1. ________________ 2. ________________ 3. ________________

7. When an insect carries pollen to a flower it receives ____________ as a reward.

8. Find a dead flower on the plant. Look closely to find the SEEDS in the ovary. Will these produce a plant with the same type FLOWER your plant has?





Stake A Claim

Did you ever look into the forests and deserts at your feet? Strange beasts stir and stalk and fly among gnarled, scaley roots and stems within centimeters of the Earth's surface. Consider that turbulence of life. Open a student's senses to minuteness, the things that can be held on a finger, to life that most of us ignore.

This activity is designed to help the students focus on smallness. Give each student a one-meter string with both ends tied together, pencil, crayons, clip board and worksheet. When you reach a park, vacant lot, or other open space, have each student choose a claim site by spreading the meter string in a wide circle over the ground. Encourage students to explore wet or dry, rocky or sandy, sunny or shady environments as these become sources for comparison and understanding of diversity.

Stake Your Claim

1. Sit quietly by your claim.
Feel the air. The air is:
damp/dry warm/cold windy/still
(circle one in each pair)

2. Bend close to your claim and sniff the AIR with eyes closed.
The air smells like ______________

3. Dig your fingers into the SOIL. The dirt is:
hard/soft dry/wet sandy/gravelly
(circle one in each pair)

4. Is the VEGETATION growing on your claim dense or sparce ?
(circle one)

5. Peer closely between the stems, roots and rocks on your claim and find an ANIMAL. With crayons draw the animal on the back of the paper.
What is the animal doing?

How does the animal protect itself?

Where is the animal's home? (Sometimes animals carry their homes on their backs.)

6. Look again under the rocks and around the plants of your claim.
How many animals do you count there? ______________

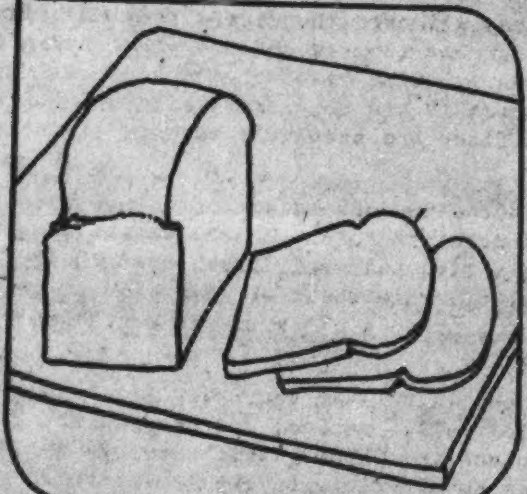
7. How many plants live on your claim? ______________

Now carefully replace any plants or animals you may have moved when you explored your claim. And let the earth re-claim itself.

41.

Beyond The Neighborhood

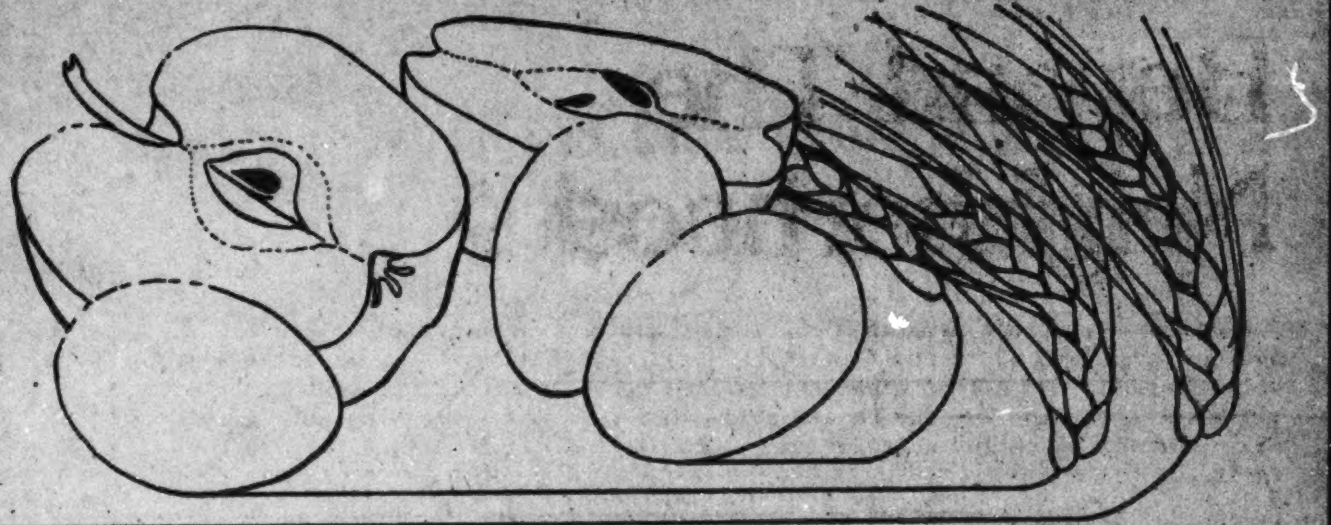
We need not go beyond the immediate neighborhood to learn the many ways in which our daily lives in the city are connected with the larger world. We need only ask local shopkeepers where their merchandise comes from or trace the sources of the electricity in our street lights and the water in our faucets to discover that our city lives are intimately connected with the icy streams of the Sierras as well as with wheat fields in Kansas, coffee plantations in South America and textile mills in India. When we go beyond the neighborhood we can see the connections which our lives make with other less familiar environments. Following are two very different kinds of projects which took us and the students beyond our neighborhoods.



FOOD-TRIPPING

Food is a natural for showing not only the connections between the city and the country but much more as well. Starting with a slice of bread, we have explored farming, food chains, packaging, nutrition, energy and economics. We usually start things off with a film entitled "Toast", available at Earthwork, which in ten minutes and with little more than ten words traces all the energy which goes into producing a slice of toast. Our fieldtrips have taken us to supermarkets, natural food stores, community co-op stores, Farmers Market, the People's Bakery, and the Zen Center's Green Gulch Farm.

The purpose behind these trips has been to introduce students to the sources of their food and the processes this food goes through before reaching their mouths. Moreover, we want them to know that there is more than one way to grow



a bean, bake a loaf of bread, bring the food to market, and sell it in the stores. When possible, we give students the opportunity to shop at and compare three different kinds of food outlets: supermarkets, neighborhood co-op stores, and farmers' markets. Some pointers on visiting stores, especially small ones: obtain permission from the workers first, arrange for a convenient time, and divide the class into small groups which take turns visiting the store.

Many aspects of food can be compared besides price. Students can find out where the food comes from and how it was grown, what additives have been used, how it is packaged and how its freshness and nutritional value compares with food in other stores. The stores themselves can be compared in terms of the amount of waste food that is generated and what is done with this, purchasing and pricing policies, whether and in what ways shoppers have a say in policy-making, and what community services the stores provide.

In San Francisco and Berkeley we are fortunate to have a number of different kinds of food distribution networks in operation. Students can, for instance, visit the produce terminal where huge trucks come in from across the nation bringing produce grown on large-scale farms and purchased by supermarkets all over the city. They can also visit San Francisco's Farmers' Market where small farmers from around the state bring their own produce in and sell it themselves. Similarly, with baked goods, students can see a mass-production system in operation at Kilpatrick's and they can visit the People's Bakery where a collective of people mill the flour and prepare a variety of whole-grain breads that are sold in the community stores.

At Jefferson School in Berkeley, first and second-graders became more involved in the bread-baking process. We took the second-grade class to the nearby Westbrae Natural Foods Store where they could see flour being milled and small fresh bread being baked. There they bought all the ingredients for making whole wheat bread, weighing and sacking their bulk purchases. These were brought back to a class of first-graders who baked the bread and shared it with the shoppers.

The classes also visited the Zen Center's Green Gulch Farm near Muir Beach where acres of vegetables are grown according to the "biodynamic" method, a system which allows a high yield in a small space. It is "labor-intensive" farming which employs human labor rather than energy-consuming methods and uses no petroleum or chemical fertilizers and pesticides. Another farm where we hope to take students in the future is the collectively-run egg ranch in Morgan Hill which provides eggs for the community stores. It is one of the few egg farms in this formerly important egg-producing area that has survived as a small producer, and it is the only one where the chickens are allowed to roam free.

Highrises And Pygmy Forests

Our toughest and most memorable challenge involved working with an Everett Junior High class of twenty-five eighth-graders, some of whom were quite angry with the world and all of whom were having trouble making it in school. The class met every morning for three hours. Our task was to develop an eight-day environmental education unit for them which included a three-day trip to the woods.

We decided to make the unit a study of contrasts, starting with the most highly urbanized areas near us and ending with a natural one about 150 miles away. In this way the students could experience and learn from a wide range of environments, some of which would be quite new to them. Moreover, the two of us — one a naturalist, the other an "urbanist" — could lead our favorite kinds of fieldtrips and use our skills most fully. The trips we designed started with a plunge into San Francisco's financial district and ended with three days at Jughandle Creek Farm, a nature-study center near Mendocino which includes, among its five terraces of geologic-evolutionary history, a pygmy

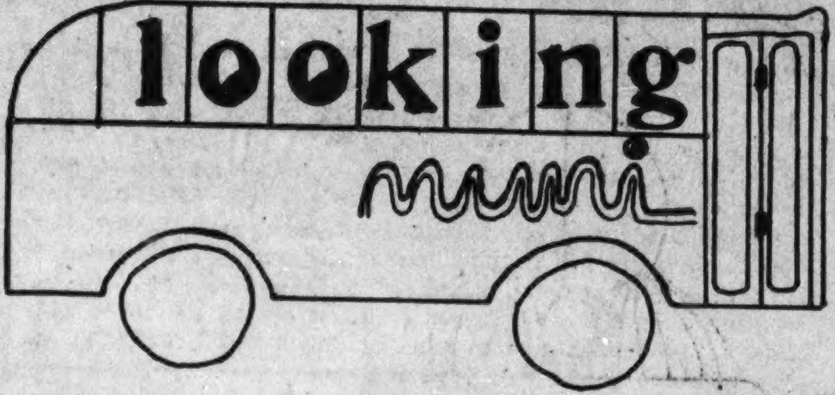
forest. Between these trips we studied the school neighborhood, visited the Junior Museum, and made preparations for our adventure into the woods.

On the trip to the financial district, the students boarded the "J" streetcar armed with cardboard clipboards and six (!) worksheets. They immediately became private 'eyes' investigating the environments INSIDE THE BUS and OUT THE BUS WINDOW. As soon as they got off the streetcar, they encountered their next study site, a CITY STREET CORNER, the bustling intersection of Montgomery and Market Streets, ideal for people-watching and brief surveys of jobs, transportation and traffic signs. Plunging down the concrete canyon of Montgomery Street, the students recorded their observations of the surrounding BANKS AND BUILDINGS as they walked toward Washington Street and the TRANS-AMERICA PYRAMID. The Pyramid provided a chance for the students to see the inside of a highrise and, through the observation window on the 27th floor, to get a different perspective on the city. From this vantage point they could see parking lots, freeways, bridges, rooftop gardens, islands, and innumerable other environmental features of San Francisco, including the Bay. Our last official stop was at the Federal Reserve Bank on Sansome Street, the "bank's bank", an awesome structure and a symbol of the power of San Francisco's financial district. In addition to learning its function, we had the students study it as an environment, using the ENVIRONMENT TEST taken from Zephyros' Deschool Primer #12.

Back at school, our neighborhood explorations included such things as interviews, trash and traffic surveys and crayon-rubbings. We found that dividing the class into teams and providing students with options helped overcome the resistance which some had to participating in certain activities.

Our biggest surprises, challenges and rewards came in taking the trip to Jughandle Creek Farm. Rather than being excited about the chance to go to the country, many students were genuinely frightened at the thought of leaving their familiar city environment. Even our assurances that they would not be camping out but living in a farmhouse with electricity and plumbing did not ease their fears. They continued to ask questions about 'wild' animals and how dark it got at night, about what kinds of people lived there and whether there would be a TV. Even after much discussion and showing of slides of the area, only seven of the twenty-five students chose to go. The group which did go had an exceptionally fruitful time (see "Some Gifts We Have Received" p.4). Two students,whom we feared had been uncomfortable with the experience,became very excited as we drove into the city, about all the 'country' things they were seeing. "Hey, look at those trees", one exclaimed. And as we passed a man selling produce off his truck, another shouted, "Look at that man! He belongs back in Mendocino."

The trip was worth it if it helped these two see the city in new, more positive ways.



looking out the bus window

1. How many different **SHAPES** of windows can you see? Draw some below:

2. How many windows have **FLOWERS** in them? Keep a tally:

3. How many **TREES** can you count on a block? Count the trees on 3 different blocks:

Block 1 ________
Block 2 ________
Block 3 ________

What is the average number per block? ____________

4. What things do you see which show you that people **CARE** about their environment? that they **DO NOT CARE**? Make a list below each of the following columns.

signs that people **DO CARE**	signs that people **DO NOT CARE**
(continue	on back)

inside the bus

Be a private eye

your **assignment:**

carefully observe one person (don't let them notice you!)

what **clues** can you detect that indicate:

① Where this person is coming from
your guess:
clues:

② where this person is going
your guess:
clues:

③ what this person does
your guess:
clues:

④ how this person is feeling
your guess:
clues:

a puzzler:

① At which stop do the **largest** number of people board the bus?

② At which stop do the **largest** number of people get off the bus?

③ How might you explain this? Write your **theory** below:

what can you learn from a

city street corner ?

list all the **jobs** you see being done

transportation: how many kinds can you find here? list them

how are people getting around?

what kinds of **SIGNS** do you see? List them below

what are they telling us to do?

what are the rules?

do some people-watching

how many different ways do people dress, walk, smile, talk? what clues do these give you about them?

choose ONE person to watch very carefully.

① what kind of **CLOTHING** is s/he wearing?

what do you think s/he does for a living?

② how is s/he **WALKING**?

where do you think s/he is going?

③ what kind of **FACIAL EXPRESSION** does s/he have?

how do you think s/he feels today?

NOW, imagine that you are this person. put on his/her facial expression. walk like him or her. HOW DO YOU FEEL?

* you might interview this person and match his/her answers with yours. you might be surprised.

use the back to continue your answers

banks & other buildings

in the financial district

Can you find **BANKS** from 5 different **NATIONS**?

NAME of bank	NATION	YEAR bank was built
1.		
2.		
3.		
4.		
5.		

How many **BUILDINGS** are there in a city block? ____________ (number)

Identify the block:

____________ (street name) between

________ and ________ (cross streets)

Find the **TALLEST** building on your block. How many **STORIES** is it? ________

How many **WINDOWS** does it have? ________

Which building is your **FAVORITE**? ____________ (name or number)

What do you like about it?

DRAW it on the back of this paper

What **NON-HUMAN** things live on this street?

What do they need **PROTECTION** from?

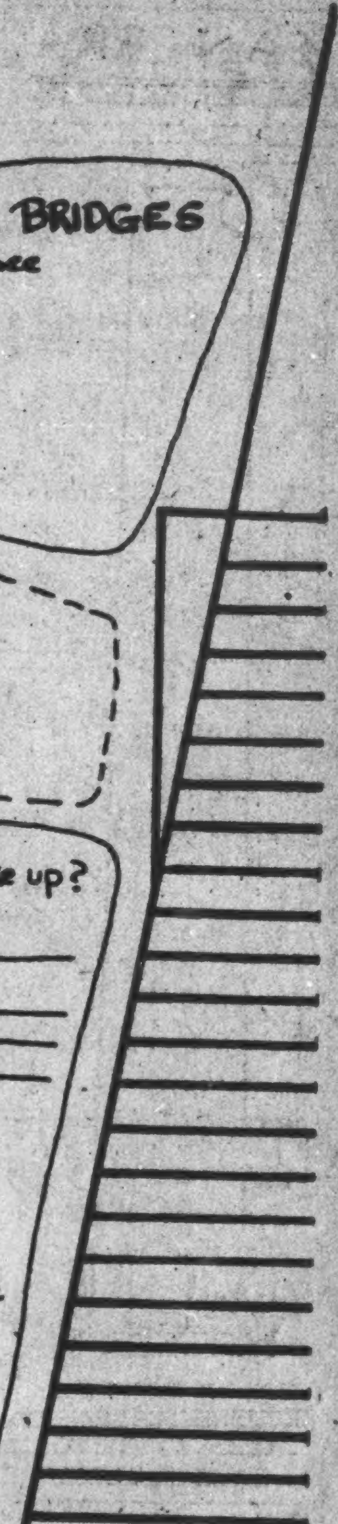
In what ways are some of them being protected?

extra-credit

On the back of this paper write down the **NAMES** of the **STREETS** we cross. Find out about their history at the public library.

what can you see from the 27th floor of the

trans america PYRAMID?



ISLANDS

HOW MANY can you see? ______

what are their NAMES?

what is going on on the BAY?

make a list of things you see happening:

(continue on the back)

which **BRIDGES** can you see from here?

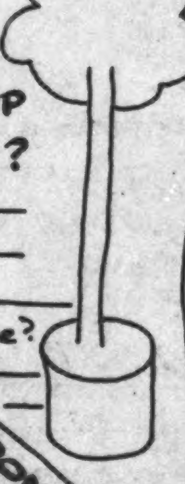
can you find a **ROOFTOP GARDEN?**

______

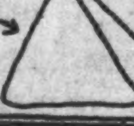
two? ______

three? ______

more? ______



a **FLAT IRON** building looks like →



how many can you find?

______

how much space do **CARS** take up?

count the number of PARKING LOTS: ______

how else do cars take up space? ______

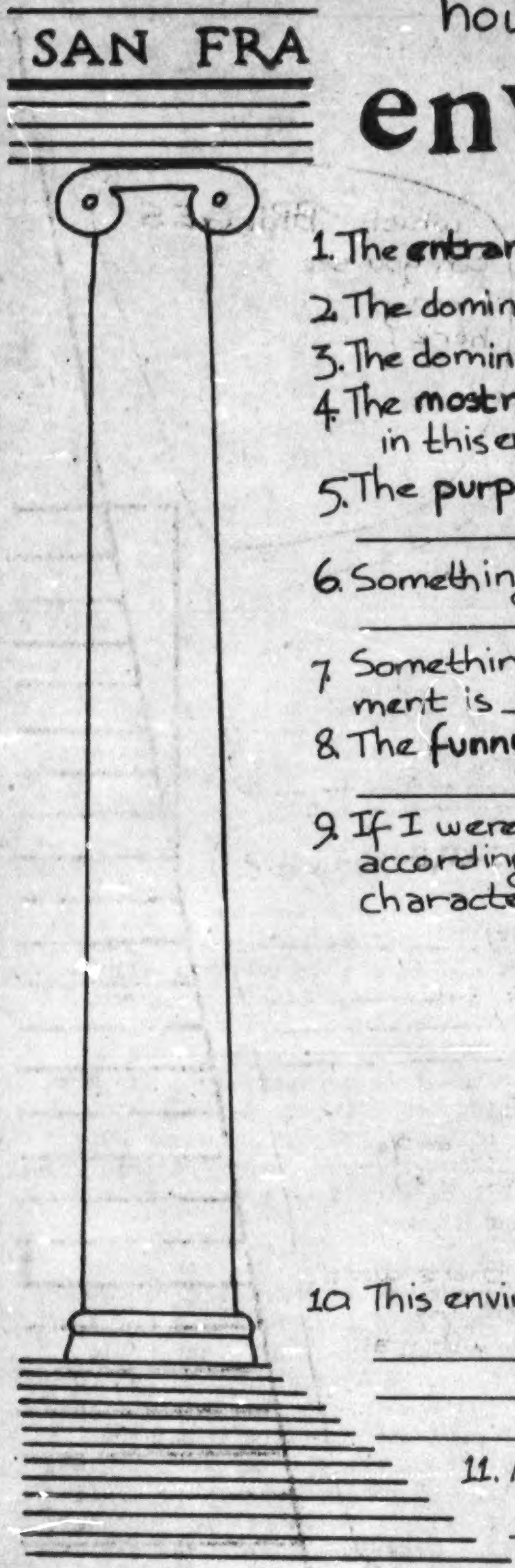
______

______

make an ESTIMATE:

CARS take up 1/3, 1/4, 1/2 or 3/4 (circle one) of the space in the city.

IMAGINE that there were NO CARS in the city. what might you do with all that space???

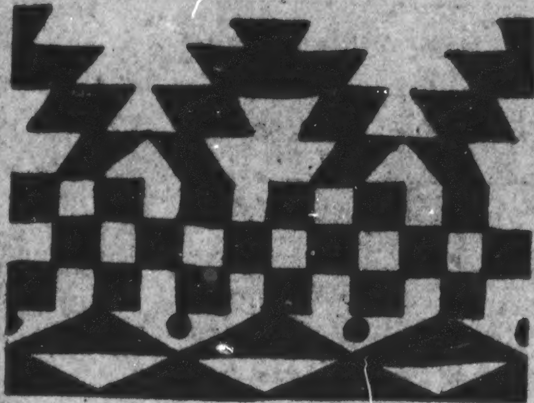


how do you describe this **environment?**

1. The **entrance** to ________________ is:
   a) inviting
   b) threatening
   c) intriguing
   d) confusing
   e) other ________
   ____
2. The dominant **color** is ________________
3. The dominant **sound** is ________________
4. The **most numerous objects** I see in this environment are ________________
5. The **purpose** of this environment appears to be ________________
6. Something **out of place** in this environment is ________________
7. Something I would like to **add** to this environment is ________________
8. The **funny thing** about this environment is ________________
9. If I were to **describe** this environment according to one-word definitions, I would characterize it as: (circle one in each pair)

   soft or hard
   old or new
   open or closed
   big or little
   calming or threatening
   female or male
   just or unjust
   safe or dangerous
   have or have not
   black or white
   alive or dead
10. This environment makes me **feel** ________________
    ____
    ____
    ____
11. A suitable **slogan** for this environment is:
    ____

Carolyn...

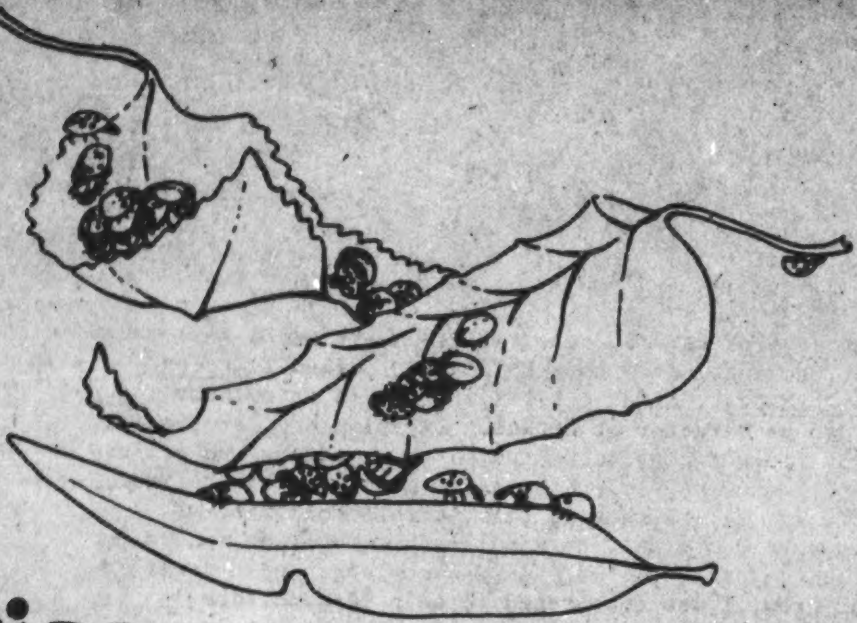


In the Summer of 1970 I participated in a project called "Environments and People" which radically changed my approach to teaching. In this project, sponsored by East Palo Alto Community House, 26 of us -- six adults and twenty 13 to 17 year-olds -- plunged into the Sierras for one week, into San Francisco for another, and then returned to Palo Alto to develop a community-oriented project from our experiences. The learning was intense, experiential, and very exciting. It was difficult to go back to the class-room after that Summer.

Why should such effective learning experiences be relegated to small Summer programs and alternative schools? Could they not be integrated into regular school programs? It seemed to me that they could, and ever since that Summer I have devoted my energies to doing just that. Over the past five years I have designed a number of environmental and community studies programs for schools in the Bay Area; through the Education Extension of the University of California, Berkeley, I have offered workshops for teachers on "Using the City as a Classroom", and, for the last three years I have worked with the San Francisco Ecology Center developing what is now known as the "Ecology for City Kids" program. Through this last program I have worked with thousands of students and their teachers, getting them out onto the streets and into the parks, learning about their city and its ecology firsthand.

It has been a satisfying program for me in terms of the work, both with teachers and children and also with the many people and programs of the Ecology Center. It seemed inevitable that Erica and I would work together. We found that, with her being a naturalist and my being an explorer of city environments (an "urbanist", you might say), we made a great team when it came to developing an ecology program for city kids -- which is just what the Ecology Center wanted at that time. Since then we both have helped initiate and organise other programs connected with the Center. I am now working part-time in the schools and spending another part of my time helping develop Earthwork: An Urban Center for the Study of Land and Food. I am particularly interested in helping people develop healthier, more economic ways of relating to food -- from growing their own to becoming involved in new food distribution networks to learning how to cook simple, nutritious meals.

And what did I do before I began exploring San Francisco with schoolkids? A native Californian, I grew up alternately on a farm in the Sacramento Valley and in the Sunset District of San Francisco. I also taught high school for four years after having received master's degrees in biology and education from Stanford University and a secondary teaching credential from the State of California.



Erica...

I am a native of San Francisco and grew up in Palo Alto. As a little girl I was drawn to the plants and animals of my backyard. Hours were spent inspecting flowers to see the color and shapes of their centers, as well as what crawled inside. Once, a neighbor gave me a nest of five baby house finches to save them from being over heated by the porch light on which their parents had built the nest. Day after day they gobbled down their nestling food mixture and grew astonishingly fast and soon were able to fly free. I am sure it was they who rewarded me weeks later when, standing under a tree a block from my house, a small flock of brown birds swooped down, touched my head and shoulders and disappeared twittering into the greenery.

My interest in the natural world was diverted temporarily at fifteen. A man from India brought his bolts of cloth to show my tenth grade art class. The colors, folds, textures and patterns of these fabrics sent such excitement through me that within a few years I was motivated to attend the University of Washington to study Fine Art and Textiles. I knew that one day I would become a textile designer.

After graduation I spent all my time working with fabrics - printing, weaving and designing wall hangings, upholstery and clothing. A part time job teaching fine art to children opened up a world I had not explored since I was a child myself. In my class there was a boy who drew the same picture over and over again only for his mother's approval. My experience with him made me realize I had a key to opening up new worlds for many children. I attended California State University at Hayward and received an elementary teaching credential. My intention was to eventually become an art specialist in an elementary school, but some force suddenly led me down another path.

A chance to combine my love of nature, some skills in art and a newly developed interest in teaching led me to take a class called *Teaching the Curriculum in the Outdoors*. After a few more courses in outdoor education I landed a job as Director of Berkeley Day Camp and then, after three years as Director, taught classes for children in nature and ecology in an after-school enrichment program. I began to meet some of the most skilled outdoors people and naturalists in California. Following an ancient tradition I apprenticed myself to some of them in order to learn more about the flora and fauna around me. As my knowledge and understanding of the environment grew, I was encouraged to help lead children's history-nature trips to Jug Handle Farm in Mendocino and to the Donner Pass area in the Sierras with other naturalists from the California Institute of Man in Nautre. A mutual friend invited Carolyn and me to meet one another at the San Francisco Ecology Center late in 1973 to share ideas and plans for working together as environmental teachers and consultants in the San Francisco School District. And so began this project that has included many of you and your students in the exploration of the out-of-doors.

Resources

ZEPHYROS Educational Materials Exchange publishes **Deschool Primers** full of learning ideas. Write for catalog: c/o Ron Jones, 1201 Stanyan Street, San Francisco, CA 94117.

AUDUBON NATURE TRAINING SOCIETY (ANTS)offers workshops and materials on the "discovery method" of environmental education: P.O. Box 11176, Oakland, CA 94611. (415) 653-6666.

CALIFORNIA INSTITUTE OF MAN IN NATURE (CIMIN) operates Jughandle Creek Farm as an overnight facility and nature center. For reservations and information write: Jughandle Farm, P.O. Box 17, Caspar, CA 95420. (707) 964-4630

GOLDEN GATE NATIONAL RECREATION AREA (GGNRA) offers nature/history study sites and programs, including Fort Mason (415) 556-2920; Fort Point (415) 556-1693; Fort Cronkite (415) 561-7612.

EAST BAY REGIONAL PARK DISTRICT offers many nature study programs (415) 531-9300.

EARTHWORK is an educational and resource center for food and land use issues. The organization distributes educational materials and curriculum guides for teachers in the form of publications, films and slide shows. Topics include nutrition, urban gardening, food co-ops, the plight of the small farmer, agribusiness and multinational corporations. A literature list is available upon request: 3410 9th St., San Francisco, CA 94110 (415) 626-1266.

PEOPLE'S BAKERY: 3030 20th Street, San Francisco, CA 94110.

UPRISING BAKERY: 2204 San Pablo Avenue, Berkeley, CA 94702 (415) 549-1400.

ZEN CENTER'S GREEN GULCH FARM: Muir Beach and highway 1. To arrange a tour call Office Manager or Director at (415) 383-3134. A contribution is requested.

SAN FRANCISCO COMMUNITY GARDENING PROJECT: The Greenhouse (415) 566-1340.

FARMER'S MARKET: 100 Alemany Boulevard (at Putnam), San Francisco, CA 94110, (415) 647-9423.

Our Sponsor

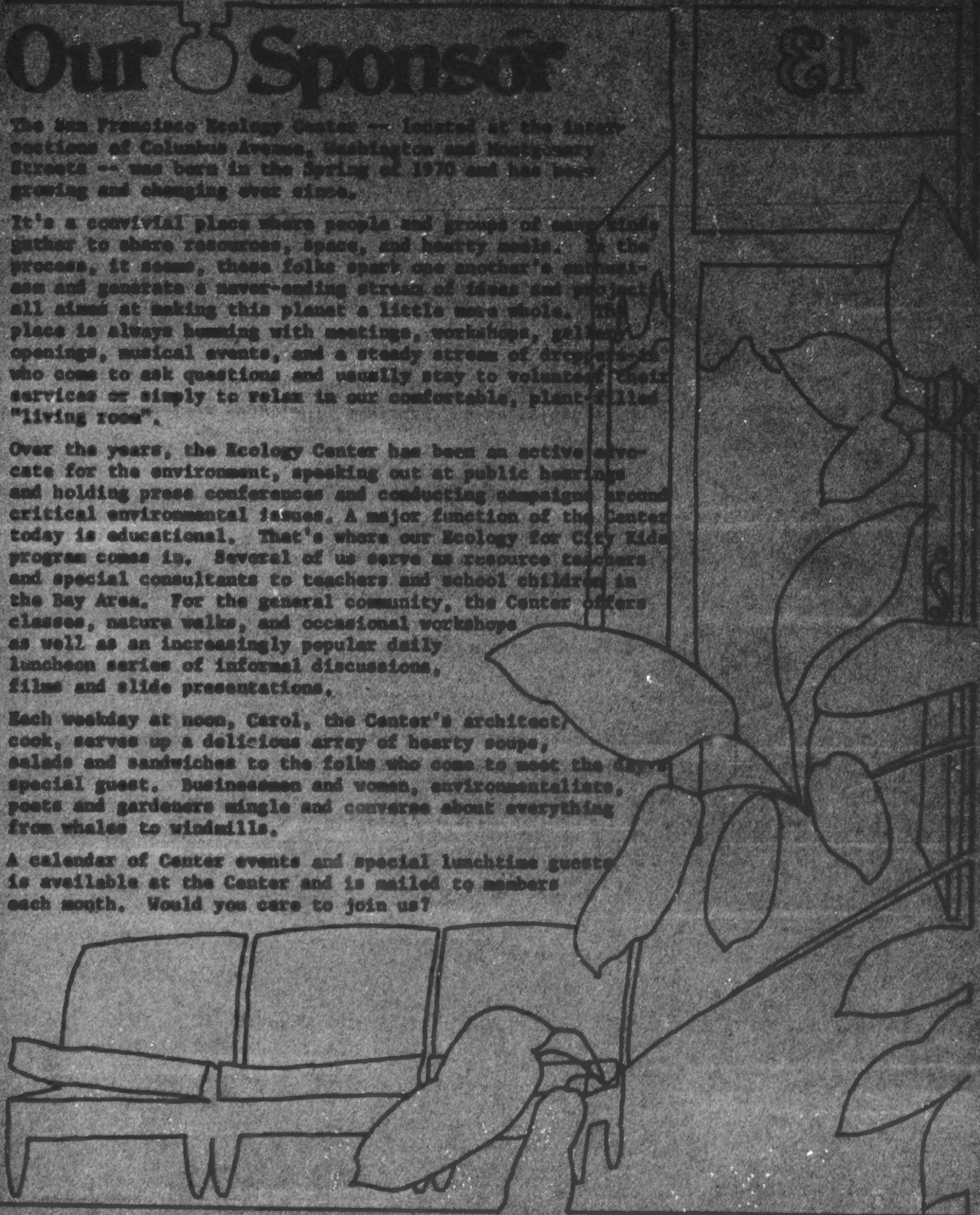
The San Francisco Ecology Center -- located at the intersections of Columbus Avenue, Washington and Montgomery Streets -- was born in the Spring of 1970 and has been growing and changing ever since.

It's a convivial place where people and groups of many kinds gather to share resources, space, and hearty meals. In the process, it seems, these folks spark one another's enthusiasm and generate a never-ending stream of ideas and projects all aimed at making this planet a little more whole. The place is always humming with meetings, workshops, gallery openings, musical events, and a steady stream of droppers-in who come to ask questions and usually stay to volunteer their services or simply to relax in our comfortable, plant-filled "living room".

Over the years, the Ecology Center has been an active advocate for the environment, speaking out at public hearings and holding press conferences and conducting campaigns around critical environmental issues. A major function of the Center today is educational. That's where our Ecology for City Kids program comes in. Several of us serve as resource teachers and special consultants to teachers and school children in the Bay Area. For the general community, the Center offers classes, nature walks, and occasional workshops as well as an increasingly popular daily luncheon series of informal discussions, films and slide presentations.

Each weekday at noon, Carol, the Center's architect/cook, serves up a delicious array of hearty soups, salads and sandwiches to the folks who come to meet the day's special guest. Businessmen and women, environmentalists, poets and gardeners mingle and converse about everything from whales to windmills.

A calendar of Center events and special lunchtime guests is available at the Center and is mailed to members each month. Would you care to join us?



San Francisco Ecology Center 13 Columbus Avenue S.F. 94111 391-6307